

Ground, by burning old Leather upon it; see *Jo. Baptista Ferrarius, de Florum Cultura*. Concerning the Antipathy between Toads and Serpents; see *Eph. N. C. D. 1. a. 1. o. 137*. The Antipathy between them and Spiders is so commonly known, that it is sufficient only to mention it; but it will not be improper to add a Circumstance mentioned by *Helmout*, which is, that when the Toad perceives itself wounded by the Spider, and begins to swell, it has immediate Recourse to the narrow-leav'd Plantain, in order to prevent its own Death. But *Valpurnus* seems to doubt of the Truth of this Observation. See ARANEA.

Whether it is owing to this Antipathy, that the Toad, in dry Weather, and when the Sun shines, does not come Abroad without being arm'd with Rue, for fear of meeting with the Spider, as *Kircherus, Mund. Subt. T. 2.* asserts, I leave others to determine; only of this we are certain, that most Gardeners think Rue disagreeable to the Toad, since they plant their Sage in alternate Rows with Rue, in order to save it from the Poison of that Animal. It is repugnant to Experience, that Toads are produc'd from the Bodies of Ducks when buried, as is reported; because, when alive, they were fond of eating Toads; see *Kircherus*. From this Circumstance, however, we learn, that Toads devour'd by Ducks do not prove poisonous to them. Neither do Ants sustain any Harm from them, since, according to the same Author, a Toad thrown into a Nest of these Insects is soon consumed and eat up by them. Now 'tis certain, that neither Duck Flesh, nor Ants, are possess'd of a poisonous Quality; but that the Toad proves hurtful and poisonous to Mankind is sufficiently plain, from numberless Instances; and the Toad which lives in dry Places is said to be more hurtful and poisonous than that found in moist and marshy Places; and those found in dark and cold Places are thought to be more noxious than others. Authors inform us, that Strawberries, and other Vegetables, contaminated by the Saliva or Urine of the Toad, have, if used in Food without being wash'd, produced very bad Consequences by their poisonous Quality; see *Francisci Jacobi Opera Medica*. Concerning the poisonous effects produc'd by frequently handling a Stone, with which a Toad had been struck, see *Eph. N. C. D. 2. a. 1. o. 134. a. 5. App. p. 20. a. 6. o. 113*.

That the Water in which Toads live, when warm'd, produces poisonous Effects on the Persons who bathe in it, we are told in *Eph. N. C. Cent. 3. p. 256*. That the Air also in Places much frequented by Toads, does Harm to the Lungs, we are told by *Valentinus*, in his *Pandectae Medico-legales*. When the Toad is enraged, he is said to discharge his Urine in the Eyes of his Persecutor; and by that means make Reprisals for the Injury done him, since it is thought to be possess'd of a Quality highly prejudicial to the Eyes. But *Brown* doubts of the Truth of this Fact, and is of Opinion, that the Toad cannot properly be said to piss, but, like Birds, discharges its Urine and Feces from one and the same Passage; *Brown's Vulgar Errors*. According to *Fallisnerus*, the Toad discharges its Urine, which is yellow and oleous, from a Passage allotted solely for that Purpose. But 'tis known from incontestable Facts, that this Urine is not of a poisonous Quality, whether exhibited internally, or apply'd externally. Besides, an Ophthalmic Virtue is ascrib'd to the Urine of the Toad; and this a certain Physician informs us he experienc'd on himself; for, whilst he look'd at a large Toad, which he had run through with his Sword, the Toad, with a violent Impetus, discharged his Urine in his Face and Right Eye, by which Accident a troublesome Itching was excited for about the Space of half an Hour; after which his Eye was not only as well as it was before, but rather clearer, and its Sight stronger; for it had formerly been subject to Redness and Dimness; see *Eph. N. C. D. 3. a. 7. o. 59*. Another Physician calls the Ophthalmic Virtue of the Toad's Urine in Question; because the Quack at *Venice*, who provok'd a Toad to piss in his Mouth, paid for his Folly, by losing his Life half an Hour after, though he immediately made use of his boasted Antidote, in order to prevent the fatal Consequences that might ensue; and this Physician is of Opinion, that the Liquor discharged by Toads, when attack'd by Men, is not their Urine, but a Liquor darted from their Eyes, which, when a certain Person who had struck a Toad, receiv'd into his Left Eye, he immediately felt an Itching in that Eye, which was soon after seiz'd with a burning Heat, an Inflammation, a Swelling, and a kind of Blindness, accompany'd with a darting Pain. But these Symptoms were at last removed by repeated Instillations of the express'd Juices of the greater Houseeek, and the broad-leav'd Plantain; see *Eph. N. C. Cent. 4. o. 107*. Others ascribe a venomous Quality both to the Blood, and to the Saliva, of the Toad, but more especially to the latter; see *Forrest, Obs. Med. L. 30. Obs. 6. & 7. in Schol.* Some are of Opinion, that Nature herself has wisely distinguish'd venomous Animals by their ghastly and horrid Colour. Some have also asserted, that the Person who gazes long on an ill-colour'd Toad of an horrid Aspect, becomes pale, and assumes an ill-temperous Colour. If 'tis true, that this Circumstance really happens, I am of Opinion, that it is not to be accounted for from

any Effluvia passing from the Animal to the Person, but from his being struck with Terror upon reflecting on the poisonous Nature of the Toad, and his entertaining a Notion, that it can exert its hurtful Qualities at a Distance; for a Toad is commonly call'd the *Magnetic Purse* of Poison, and contagious Virulence. *Dioscorides, L. 6. C. 31.* says, that a Toad swallowed excites Tumors; and that by such a Misfortune the Skin becomes pale, and at last as yellow as Box-wood; the Patient is rack'd with a Difficulty of Breathing, his Breath becomes ill-scented, he is afflicted with the Hiccough, and sometimes an involuntary Effusion of the Semen ensues. The Patient is reliev'd by Vomiting, by liberal Draughts of Wine, and by taking two Drams of the Root of common Reed, or an equal Quantity of the Cyperus. By-and-by the Patient must be forc'd to walk hard, or run, in order to carry off the Torpor with which he is seiz'd. He must also be wash'd every Day.

Paulus Aegineta, L. 5. C. 36. says the same thing. *Caspar Caldera* affirms, that the Eggs of the Toad, swallow'd, kill very suddenly, and produce most violent Pains of the Stomach; and that such as have the Misfortune to swallow them die, with their Bellies prodigiously inflated. According to *Bartholine*, in *Act. Haffn.* a Toad held in the Hand cures it, after it has been hurt by another Toad. *Boerhaave*, in his *Institutiones Medicae*, § 1144. classes Toads among the heteroclitic Poisons, destructive of Life, whose Virtues are not as yet sufficiently understood, which kill in a manner not easily to be accounted for; and which, besides the general Antidotes, such as Vomits, aqueous, emollient, laxative and oleous Substances, call for spirituous Acids, saline Substances, and such as resist Putrefaction. Among the Poisons most remarkably possess'd of a deleterious Quality, is the *American Toad*, by the *Brazilians* call'd *Cururu*, and by the *Portuguese* *Capo*, which has Excrecences from both Sides of its Head, resembling large Warts. This Species is very large, and swell'd as big again as the *European Toad*. It is of a cineritious or bay Colour: Its Urine and Saliva produce dismal Consequences, whether internally used, or externally applied; but still more terrible Effects are brought about by swallowing its Blood, its Fat, and especially its Gall. The most wicked and abandon'd of the Inhabitants, and some others after their Example, terrify these Toads, and reduce them to a Powder, of which they prepare poisonous Draughts, which, exhibited in the smallest Quantity, immediately bring on Inflammations, and Dryness of the Fauces and Throat, Difficulty of Breathing, Hiccoughs, Vomitings, Dysenteries, Faintings, Dimness of Sight, Convulsions, Deliriums, and Paleness. If there is room left to hope any thing from Medicines, Evacuations are to be made by Vomit and Stool; and the Remains of the Poison are to be eliminated by Exercise and the Bath, and by putting the Patient into an hot Oven, or into the Belly of a fresh-kill'd Animal. The general compound Alexipharmics are to be exhibited for some Days, and the Patient order'd to drink Infusions or Decoctions of such Roots as are produced in the Country, and look'd upon as Antidotes against Poison. But above all, the Herb by them call'd *Nhambi* is to be exhibited, since it seems to have received from bountiful Nature a Quality capable of curing, or at least allaying and mitigating, so formidable a Disorder. The most profligate and wicked of these *Barbarians* hang up this Species of Toad in the Sun, collect its Spume and Gall, and keep them as secret and slow-killing Poisons, *Piso, L. 5. C. 15*. The Figures of the *American Toads* may be seen in *Albinus Seba*.

Turner gives the following Account of the Toad.

Among us, some believe, we are more afraid of them than there is Occasion for; and there have been found those who have been very familiar with them; and that upon some Wager or Frolick have eat them, and commend them for as great Dainties as the Frog. But let not Peoples foolish Presumption, who have by some singular Accident, as a full Stomach beforehand, or some Idiosyncrasy, escaped freed, induce others to take the like Freedom, lest they pay dearly for their Folly, as did a Person I knew many Years ago, who putting the Head of one of them into his Mouth for some time, whether by the Bite, or Slaver only, of the Creature, communicated to his Tongue and Lips, had that Night, and the next Day, both so swelled, that he could not pronounce any Word plain for several Days after, and was in no small Danger of being famish'd, by reason of the said Tumor affecting the back Parts of his Throat, with the Muscles subservient to Deglutition.

Redi, instancing in some who eat these Creatures without Harm, subjoins, that though the Toad may happen to prove no Poison in the Whole, yet may it envenom outwardly; an Example whereof he gives in a Boy, who stumbling on a Toad, and after throwing Stones at it, some Juice from the bruited Toad chanced to light upon his Lips, whereupon they swelled each to about the Thickness of two Thumbs; and he neglecting to use what might be proper to restore them, they have continued in that misshapen Size ever since, *Philos. Trans. Abr. Vol. 2*.

Ardoynus observes, that as he came from the University of *Bologna* in *Italy*, (where he had newly taken his Doctor's Degree)

grée) to *Pesara*, he saw a young Man, who having killed a large Toad with his Lance, he fell into an absolute Stupor of his whole Body, and lay snorting for two Days together without Pulse. Had I known, says he, as much then as now, I make no doubt, but I could have recovered him. From whence we may suppose the young Man dy'd.

As remarkable is that of *Ferdinandus Pontellus*, of a Person going over his Grounds with a Reed in his Hand, and therewith transfixing all the Toads he met with, throwing them out into the Highway: When, on his Return home to Dinner, he threw up all he eat; nor did his Vomiting leave him 'till he fed himself with the other Hand, that had not held the same Instrument. But more tragical yet is the Story which *Mizaldus*, in his first Century of Remarkables, recites, of a Gentleman sporting with his Sweetheart in the Garden, near a large Bed of Sage, who, inadvertently pulling off some Leaves, fell to rubbing of his Gums and Teeth; which so soon as he had done, he dropt down dead. The young Gentlewoman, being carry'd before the Magistrate, upon Suspicion of poisoning the Man, told the Judge he had only rubb'd his Teeth with such a Leaf as she had brought with her, and desperately in the Court began to use the same, with the like Event, she dying also thereupon, that she might not be thought to have deprived him of Life, without whom she could not live herself. Upon which, by Order of the Magistrate, the Sage was order'd to be dug up and burnt; when, turning the Ground, behold, a large and ghastly Toad appears; which Creature is said to be much delighted with this Plant; and which he, says our Author, should have first consider'd, who compil'd that Verse,

Cur moriatur Homo, cui Salvia crescit in Horto?

This Effect of Sage is however more rationally attributed to the poisonous Eggs of Insects lodg'd on the Leaves.

Though Toads want Teeth, saith *Parey*, yet with their hard and rough Gums they so streightly press the Part they take hold on, that they will force their Poison thereinto, and so over the whole Body, by the Pores of the pressed Part. Moreover they cast forth their Venom by Urine, Spittle, Vomit, or Slaver, upon Herbs, but chiefly upon Strawberries, which they are reported greatly to affect. Hence many have suddenly and ignorantly caught their Deaths. A sad Instance whereof he lays down, in the Cases of two Merchants near *Tholouse*, who, whilst the Dinner was getting ready, walking into the Garden belonging to their Inn, and gathering some Sage-leaves, put them unwash'd into their Wine. After which, before they had fully din'd, they were seized with a Vertigo, and lost their Sight, fainted, and had Convulsions; they stammer'd with their Lips, and their Tongues appeared black, looking frightfully, continually vomiting, with cold Sweats, the Forerunners of Death, which quickly ensued, their Bodies becoming afterwards exceedingly swell'd, by reason whereof there was just Suspicion, that they had been poison'd; and the Host, with all the Servants and Guests at that Time in the House, were apprehended; and, being examin'd, they all constantly, and with one Voice, asserted their Innocence; affirming, that they had all the same Provision with the dead Parties, of which they had eat and drank, only the Deceased had put Sage into their Wine. A Physician was ask'd the Question, whether Sage might be poisoned: He answered affirmatively. But, to come to the Purpose, it must appear whether any venomous Creature hath poisoned the Plant with her Spittle or Sanies. This, which was lightly pronounced, and only by Conjecture, was by the Eye found true; for, at the Root of this Bed of Sage was found a Hole in the Ground, full of Toads, who coming out upon pouring in hot Water, made it credible, that the Herb was poisoned by their Slaver, or venomous Urine. Whereby you are to understand how indiscreetly they act, who devour either Herbs or Fruits fresh gather'd, without well washing or rinsing of them.

Parey, amongst the Symptoms consequent upon receiving the Poison of a Toad, reckons the turning Yellow, Swelling, difficult Breathing, Vertigo, Convulsions, cold Sweats, Syncope, &c. to which *Sennertus* joins a growing pale and wan, Vomiting, involuntary Discharges of the Semen, falling of the Hair, and sometimes dropping out of the Teeth, with great Stupor, saith *Haffensseffer*, which she communicates not only by her Urine, Spittle, or Vomit, but her very Breath or Halitus emitted will affect those who stand too near her.

As to the Cure, if the Poison was receiv'd inwardly, Vomiting is propos'd for the immediate Discharge of the same, together with proper Clysters; and afterwards the common Alexipharmacs, such as Venice-treacle dissolved in a Glas of good Wine, whereby the Patient may be disposed to sweat; for which others propose some brisk Exercise, or the Use of warm Baths. *Sennertus* treats the Hurt outwardly much the same way with *Parey*, ordering the Part to be well washed with Man's Urine, Water, and Salt, after anointing with Oil of the Yolks of Eggs, or Oil of Roses. The reputed Antidotes are Juice of Betony, of Plantain, and Mugwort. *Pliny* writeth, that their Heart and Spleen resist Poison; but the bruised Toad,

or some Preparation thereof, like those of other venomous Animals, rightly apply'd, will sympathetically (as reported) extract their own Poison.

Rondeletius, in his *Tract. de Piscibus*, affirms the same things of the deleterious Property of this Creature, with others; yet he says they seldom bite, but cast forth either their Urine, which they gather in a large Quantity in a great Bladder, or else their venomous Spittle, or even Breath, against those they meet with, or assail. Besides, the Herbs which they taint with their said Breath, but much more such as are imbued with the Slaver or Urine, are sufficient to destroy those who eat them.

The aforesaid *Haffensseffer* asserts, in general, that the Bites and Stings of the *Reptilia* are to be treated much alike with those of the Viper, and serpentine Kind. The Spittle, Urine, or Sanies of the Toad, says he, must be cleansed well away with Urine, or Salt-water; or if the Poison was taken inwardly, you are to procure Vomiting; and farther, to take off all the Symptoms, he extols the *Confectio Diasulphuris*, thus describ'd by *Serapio*:

Take of yellow Sulphur, of the Seeds of white Henbane, of Cardamoms, Storax, and Myrrh, each one Ounce; of Opium, and Saffron, each two Drams; of Cassia Lignea, six Drams; and of white Pepper, two Ounces: Let them be triturated, pass'd through a Sieve, and made up into a Confection with Honey.

For this Use he also takes Notice of the *Cray-fish*, and *Gentian-root*, exhibited internally, whilst the Place is dress'd externally with the following Medicine:

Take three Heads of Garlick; and of Castor, one Dram: Let them be triturated, mixed with old Oil, and apply'd by way of Plaister: Or,

Take of Gum Sagapenum, Castor, Asa foetida, Pigeon's Dung, Calamint, and Penyroyal, each three Drams; Oil of Olives, and Pitch, each a sufficient Quantity: Make up into a Plaister.

Squills also boiled with Meal, and Meal of the *Orobis* mix'd with Vinegar, are properly apply'd to the Part: Or,

Take Nitre, Mustard, common Salt, and Sal Ammoniac; make into a Liniment, with strong Vinegar: Or,

Take Garlick, Salt, and Pigeon's Dung, each equal Parts: Mix all together, and apply by way of Plaister. *Turner, de Morbis Cutaneis.*

Since from what has been said 'tis obvious, that in all Nations Toads are look'd upon as poisonous Animals, it now remains, that we take Notice of some other Circumstances relative to this Animal. That Toads, then, may be safely eaten, provided their Sweat, Spit, or Urine, are not swallow'd, is asserted by *Borelli, Cent. 2. Obs. 37.* People who have had the Misfortune to eat boil'd Toads instead of Frogs, have felt no more terrible Consequences from the Use of such a disagreeable Food, than a gentle Excoriation of the Lips, Palate, Tongue, and Fauces; from which Circumstance *Vallisneri* concludes, that the Flesh of Toads is by no means of a poisonous Quality, but abounds with a volatile diuretic Salt, which, when reduc'd to Powder, may be of excellent Service in the Dropsy. *Mundius* affirms, that the Toad, that hated Animal, has Flesh not altogether useless; for, says he, by eating Toads, and by the natural Salubrity of the Air, the *Lues Venerea* is in some *American* Islands most infallibly cured. In *Eph. N. C. D. 2. a. 7. o. 167.* we have an Account of a certain Quack, who affirm'd, that the Whole of a Toad's Body might safely be eaten, provided the Head was only thrown away, assigning this Reason for his Assertion, that the Toad, at once enrag'd and terrify'd at the Sight of any Person, calls together the Force of his Poison to his Eyes, and the anterior Parts of his Head, by which means no Parts of the Poison are left in the rest of his Body. If this is true, Impostors and Strollers have no occasion to counterfeit Toads, by filling the Skins of these Animals with Wine, in order to make the gazing Croud believe they have devour'd real Toads, as we are inform'd they do by *Borelli, in Cent. 2. Obs. 74.* *Vallisneri* also informs us, that the Excrements of this Animal are not of a poisonous Nature, but endow'd with a highly diuretic Quality. Upon the Whole, *Etmueller* concludes, that the poisonous Quality consists entirely in its Fury, or in its Excrements, especially the Urine, which is impregnated with an acrid, caustic, volatile Salt, whose acrimonious Quality seems to be deriv'd from the Aliments on which the Animal lives, that is, the small Beetles found in its Stomach and Throat. If instead of the Urine, which, from the Circumstances already mention'd, does not seem to be poisonous, we substitute the venomous Liquor deriv'd from the Body to the

Head, and especially the Eyes, this Conclusion does not seem improbable. But the Toad does not for this Reason cease to be properly classed among the venomous Animals; for tho' the Viper is not only eaten, but applied to medicinal Purposes, when the Head, which about the Teeth contains a Bag filled with a deleterious Liquor, is thrown away, yet the Viper does not on this account cease to be a poisonous Animal.

In what Cases the Toad is used for medicinal Purposes, I now come to consider. *Etmuller*, then, informs us, that a live Toad, bruised, proves an effectual Medicine for the Bite of the Viper, and other poisonous Serpents, when applied to the wounded Part. In *Velfib. Hecat.* 1. *Obs.* 53. we have an Account of a Country-man bit by a Serpent, and that in so violent a manner, that his Hand and Arm immediately swelled to a prodigious Bulk; and the Poison reaching his Heart, he was seized with frequent Faintings, so that he seem'd to be on the very Brink of Death. But, after having tried all the ordinary Methods to no Purpose, he was speedily restored by the Application of entire Toads dried, which swelled wonderfully by the Poison they extracted. The Patient in the mean time had internal Alexipharmics exhibited to him. Some Authors, as *Helmont* informs us, order live Toads to be applied over both Kidneys, for removing the Dropsy, by a plentiful Discharge of Urine. *Paracelsus* affirms, that Toads are of singular Service in the Cure of pestilential Buboes in the Groin, and such as Women are afflicted with. His Method of preparing them is, to thrust a Piece of Wood thro' their Heads, to hang them up till dry, and then to macerate and mollify them in Rose-water, after which they must be applied to the Bubo; and he affirms, that they extract the pestilential Venom, since by applying four or five of them successively they all become wonderfully tumid by the Poison they have imbib'd. *Helmont*, when making mention of these Circumstances, confesses, that he has applied Toads to Buboes and Ecthymas in the Heads, Breasts, and other Parts of Men and Women, and that he always found they afforded a speedy Relief and Mitigation of the Pain; but could never observe, that a Toad applied in this manner became in the least tumid. I shall here enumerate the anti-pestilential Virtues of the Toad, in the Words of the learned *Kramerus*: "I know, says he, several Country-people, as also Mr. *Steikarte*, a Physician at *Vienne*, who, by attending People infected with the Plague, have, if we except Carbuncles, been seized with all the Symptoms of that Disorder, especially beginning Buboes. And for a Cure they used no other Means than covering themselves lightly with Bed-cloaths, and applying whole Toads dried in the Air, and wrapt up in Cloths, to both Arm-pits, to the Thighs, and to the *Perinaeum* between the *Scrotum* and the *Anus*. They kept themselves easy also during the Transpiration of the Matter, and, for carrying it on more effectually, they kept the Toads at the above-mention'd Parts till they would swell no more by the Poison they extracted. After which they remov'd them, and in their stead put other Toads three or four times successively, till they felt themselves reliev'd."

Franciscus Jort affirms, that a Toad run thro' with a sharp Probe, dried in the Air, and moistened in Vinegar, if applied to pestilential Carbuncles, extracts all the Poison from the Body. *Helmont* also from the Toad prepared an Amulet for the Plague; and others, as *Etmuller* informs us, prepare Amulets for the same Purpose of the Bones of Toads, or whole Toads mixed up with Iling-glass, which they say extract the Poison, and prove a Preservative, if hung about the Neck. Others bruise whole Toads, boil them in Vinegar of Roses or Rue, and with Mucilage of Tragacanth make them up into Troches, which they wear about the Neck. Others order the Toad itself, thrust thro' in *June* or *July*, and hung up till dry, to be hung on the Region of the Heart, as an Amulet against the Plague. But the last Author immediately subjoins, that he was told by a certain skilful Physician, that in the Application of Toads there was a Necessity for distinguishing Plagues: That if the Plague arises from a terrestrial and incoercible Gas, exhaling from the Mines and Caverns of the Earth, in such a Case Amulets prepared of Toads were proper, because the Toad attracts such a Gas as a proper Aliment: But that, when the Plague arises from an unlucky Influx of the Stars, the most proper Amulet was prepared from Spiders, since they attracted the Poison of the Air. See *ETMULLER*.

The learned *Vallisneri* thinks it probable, that a Toad, or its Skin, applied to Buboes, or other hard Tumors, may contribute considerably to their Resolution, and also to the deterring fordid Ulcers; but he does not believe, that it can defend the Person who wears it against the Plague. Besides, by *Etmuller* we are told, that a dried Toad hung about the Neck, or in the Pit of the Stomach, or applied to the Arm-pits, or even held in the Hand, most effectually stops and cures all kinds of Hæmorrhages, and more especially such as happen in malignant Fevers, Small-pox, and some other Disorders of a like Nature.

Hall in his *Pharmaceutice Rationalis*, has these Words:

"A Silken Bag, in which a dried Toad is contained, seems to be an empirical and foolish Medicine, when wore on the Pit of the Stomach in order to stop Hæmorrhages, and prevent their Return: unless perhaps, according to the Theory of *Helmont*, that Application so frights the *Archæus*, that the Blood shall forthwith be forced to recoil, or altogether desist from flowing." The *Pulvis Bufonum siccatorum*, or the Powder of Toads dry'd in the Sun, directed in the *Brandenburg Dispensatory*, when carefully preserv'd in a dry and temperate Place, is, according to the Testimonies of a great Number of celebrated Authors, an excellent Remedy in several Disorders, whether exhibited internally, but cautiously, and in some proper Vehicle; or externally used when inclosed in Bags, or mixed with proper Plaisters, Ointments, or Cataplasms. Thus the Powder of dry'd Toads was the celebrated Secret of *Kyperus*, for the Cure of the Ascites. He prepar'd them in this manner.

Take Toads, and after having cut off their Heads, and pulled out their Intestines, dry them in the Sun, and reduce them to a fine Powder; of which the Patient is to take ten or fifteen Grains, in an equal Quantity of Sugar. This Medicine may be exhibited three or four different times, but in such a manner, that three or four Days may intervene betwixt each time; for it is a very drastic Preparation.

These Toads may also be dry'd in an Oven, and reduc'd to a fine Powder. *Etmuller*, that the Medicine may produce its Effects the more intalibly, advises, that the Toads should be killed in the Month of *July*. A dry'd Toad inclosed in a Silken bag, with a proper Quantity of the Moss of the Sloe-tree, when applied to the Navel of a Woman afflicted with a terrible Hæmorrhage of the Uterus, stopp'd the Flux as soon as it was warm on the Part, as we are told in *Eph. N. C. D.* 1. a. 9. p. 366.

The *Bufonum Cinis* of the *Brandenburg Dispensatory*, the *Bufo præparatus* in that of *Edinburgh*, and the *Pulvis Æthiopicus* of *Bates*, which he calls so on account of its Blackness, are no more but large live Toads burn'd to Ashes, in a new earthen Vessel. The Dose, according to *Bates*, is half a Dram and upwards, in the Small-pox. He affirms of it, that it relieves the Patients, tho' at the Point of Death; and says, that some highly extol it for the Cure of the Dropsy.

It is by other Authors recommended to be put into a Silken or Linen Bag, and hung upon the Breast for Incontinencies of Urine, arising from a Violence done to any of the Parts. *Eph. N. C.* vol. 1. c. 227. *Musitanus* prescribes a Toad put into the Oven alive, that it may become dry gradually as it dies, to be reduc'd to Powder, and form'd into a Poultice, with Barley-meal and human Saliva or Urine. This Poultice he orders to be laid on a Cloth, and applied to pestilential Carbuncles or Buboes. In a Quarter of an Hour after the Application, he says, the Pain will be entirely remov'd, and in two Hours a perfect Suppuration will be brought about.

The same Author proposes another very singular Benefit, which would accrue to the Inhabitants of *Naples* from the Use of this Cataplasin, which was, that by its means they might know whether Disorders that appear'd like the Plague were really pestilential or not. "In dubious Cases, says he, let it be applied to the Carbuncles, the Buboes, or any other Tumors which shall happen to appear; and, if they are really of the pestilential kind, the Pain of them will be remov'd in a Quarter of an Hour; within two Hours a perfect Suppuration will be form'd, and the Bubo or Carbuncle being open'd, all the pestilential Venom diffused thro' the whole Body will be drawn forth, if the Physician be duly careful. On the contrary, if the Tumor is not pestilential, but malignant, tho' not of the contagious kind, the Application of the Plaister will produce no Remission of the Pain, neither will any Suppuration appear; but the Tumor will remain in its former State, and be attended with the same Symptoms that generally accompany other malignant Tumors, which are not of the contagious kind."

With regard to the Preparation of this Cataplasin, *Kramerus* affirms, that the Urine of the Person to whom it is to be apply'd, is most properly used in its Composition. Afterwards he goes on to inform us, 1st, That he was induc'd to make Trial of the Cataplasin of *Musitanus*, by observing, that pestilential Buboes with Difficulty yielded to other Topics. 2dly, That this Cataplasin immediately on its first Application to Buboes, produced such intolerable Pains, that many Patients entirely refused to bear them. 3dly, That this Cataplasin, as it becomes dry, adheres so strongly to the Buboes, and Parts adjacent, that it can scarce be torn from them with the Finger. 4thly, That when it is once become dry, it ceases to produce any further Pain. 5thly, That the Buboes do not suppurate by its means in twenty-four Hours. 6thly, That they require three or four Days for that Purpose, whereas by other Topics the very same Buboes could not be soften'd, and brought to a Suppuration, in less than a Fortnight,

night, or perhaps three or four Weeks. 7thly, That as soon as the Cataplasm becomes dry upon the Buboes, and ceases to produce burning Heats, it is to be immediately renew'd, and its Renovation continued, till the Buboes are soften'd, at which time they are to be laid open. 8thly, That by the same Cataplasm, as *Kramerus* once observ'd in a robust old Man, of a thick Skin, tho' the pestilential Buboes were not soften'd, and brought to a Suppuration, yet their Surfaces were so corroded, as to give a free Discharge to a certain Ichor. 9thly, That this Cataplasm, in Venereal and other Buboes, neither excites the above-mention'd Pains, nor brings on a Suppuration. From all these Circumstances *Kramerus* thinks he has just Reason to declare in Favour of the specific antipestilential Virtues of the Toad. He recommends this Affair to the diligent Consideration of other Physicians, and refers his Reader to an Appendix he wrote to *Behren's* Treatise on the Plague, published in the German Language in 1713, in which Work he from his own Experience warmly recommends a topical Preservative prepar'd of Toads, and Roots of the Carline-thistle reduc'd to a Powder, and inclosed in a proper Bag.

In the Cure of a Cancer, says *Etmuller*, and more particularly unexulcerated Cancers in the Breasts of Women, Toads are of singular Service, either calcin'd alone, or dry'd to such a Degree, that they may be reduc'd to a Powder. The Method of applying this Powder is to sprinkle it on the Part affected. This Powder may also be mix'd with Orpiment and Soot, and apply'd, when spread, upon a Pledget moisten'd with Saliva. We are also told, that many Patients labouring under epidemical Dysenteries have been happily recover'd by the Use of this Powder, which operates as a Sudorific. Some prescribe half a Dram of it and upwards in the Small-pox. *D. Carlius* recommends the Powder of calcin'd Toads, mixed with the Powder of blue Linen Cloth burnt, in Epilepsies of adult Persons attended with an Inspissation of the Juices; and affirms, that as much of it as may be taken at twice upon the Point of a small Knife, has in some epileptic Patients produc'd the most happy and surprising Effects. He also informs us, that a Dose from ten to twenty Grains of the Powder of calcin'd Toads, exhibited internally, wonderfully mitigates arthritic Pains, and more especially those with which Wounds are attended. *Com. Lit.* for the Year 1733. p. 210.

In the same Work for the Year 1735, we have an Account of two Boys, who towards the latter End of a pestilential Disorder, in which they had been long afflicted with Carbuncles and Buboes, together with an universal Anasarca and Dropsy, were cured by a plentiful Diuresis excited by the Powder of Toads, mixed with Salt of Wormwood daily exhibited.

The diaphoretic Virtue of this Powder, by which it must of course contribute to the Cure of a Dropsy, was accidentally discover'd, as *Baecler* from *Solenander* informs us in the following History. At Rome a certain Man had the Misfortune to be afflicted with a Dropsy, and his Wife, thinking much of the Expences laid out for his Cure, maliciously resolv'd to poison him; for which Purpose she gave him a Dose of the Powder of a Toad calcin'd in an earthen Vessel, by which means a very plentiful Discharge of Urine was occasion'd. But the Wife, heartily wearied of so useless and expensive a Husband, was exceedingly desirous to put an End to his miserable Life by a sudden Death. With this View she exhibited the same Powder a second time, by which means the Waters were plentifully discharg'd by Urine, and the Patient cured. Thus the Views of Lust and Avarice were disappointed, and what was hellishly intended for a Poison, happily prov'd a noble and efficacious Medicine.

As for the Powder and Ashes of the Toad, 'tis highly probable, that the Effects they produce in the Constitution, are to be ascribed to an acrid Stimulus of a resolvent Quality, and of a salino-alkaline Nature. Hence Discharges of Urine or Sweat are excited according to the Constitution of the Patient, or the particular Regimen he uses. For this Reason many prescribe two Drams of the Powder of Toads to be taken by those who have the Misfortune to be seized with pestilential Disorders. Some Authors of undoubted Learning and Veracity also affirm, that the same Powder is an excellent Medicine for expelling Poison. Hence the Powder of incinerated Toads is by *Helvetius* called the Sudorific Powder. The sudorific Quality of the Toad is sufficiently confirm'd by the Case of a certain Countryman, who, when seized with the Plague, boiled a Toad with all its Intestines in Vinegar; and, after he had boiled it, he eat the Whole of it, and drank the Broth. However terrible this Medicine might appear, it was followed with very happy Effects; for by its means incredible Discharges of Sweat and Urine were excited; and these continuing for a whole Day, the Cause of the Pestilence was expelled, and the Patient's Strength gradually returning, a thorough Cure was brought about.

From these Qualities, I think, we are also to account for the Efficacy of the Toad's Heart, which, when dry'd, reduc'd

to Powder, and exhibited an Hour before the Paroxysm, has in some Cases cured quartan Agues. I must not on this Occasion forget to mention another Cure of the said Fever, which is said to be an infallible one, and consists in drinking the Milk in which a dry'd Toad has been boil'd. By this Medicine the febrile Matter is powerfully evacuated by Vomit, Urine, and Sweat. *Eph. N. C. D.* 2. a. 8. s. 104. a. 5. app. p. 40. The small Bones either of the fore or hind Legs of the Toad, which, when exhibited internally, produce, according to *Etmuller*, so surprising and happy Effects in the Cure of the Epilepsy, seem also to act by means of their resolvent Quality. To this Quality it is also probably owing, that dry'd Toads are by some applied to the Soles of the Feet, by way of Epispastics in Fevers, and Disorders of the Head. In *Eph. N. C. D.* 2. a. 5. s. 114. a dry'd Toad, applied to the Crown of the Head, is said to have allay'd the Violence of Madness, and at last to have cured the Patient. But how the Ashes of the Toad, used as an Amulet, can cure Incontinence of Urine, I must with *Schulzius*, in his *Prædilectiones*, frankly acknowledge to be far beyond my Comprehension, I am equally in the Dark, and equally incredulous, with regard to an Effect of which *Helmont* affirms that he was an Eye-witness, and which is, that the Bone of the fore Leg of a Toad removes the Tooth-ach, immediately upon its touching the Part affected. Neither can I give an implicit Assent to a Story of *Etmuller's*, who tells us, that the same Bone, apply'd to the Pulse in the Wrist of a Child seized with an Epilepsy, in consequence of having suck'd the Milk of its Mother after she had receiv'd a terrible Fright, instantaneously allay'd and mitigated the Paroxysm. The medicinal Efficacy of the same Bone, apply'd in the same manner in intermittent Fevers, is also what I do not well comprehend.

The *Oleum Bufonum*, in the *Brandenburg* Dispensatory, is prepar'd of Toads infused and boiled in Oil of Olives, or Oil of sweet Almonds. 'Tis generally believ'd, that Toads, by a kind of magnetic Quality, attract and draw the Poison out of the Body; for which Reason the now-mention'd Oil is made an Ingredient in Cataplasms, intended for the Maturation of pestilential Buboes. The *Oleum Bufonum* in *Bates's* Dispensatory is thus prepar'd.

Boil four live Toads in two Pounds of Oil of Olives, for the Space of an Hour, or till they burst; then, straining off the Oil, keep it for Use.

This Oil is of great Service in Pustles of the Lips, and Cancers of the Breast. In Dropsies it is of singular Service, by exciting a plentiful Discharge of Urine, if the Region of the Kidneys be anointed with it. According to *Schulzius*, in his *Prædilectiones*, this Oil is highly beneficial in the Cure of poisonous Wounds. *Musitanus* asserts, that it is a singular Secret in curing the Falling-off of the Hair, and other Disorders to which it is subject. The Method of using it is to anoint the Head often with it, having first purged the Body, and cut off the Hair. *Jacobæus* asserts, that it cleanses old Ulcers, removes Spots of the Face, and, more effectually than any other Medicines, carries off strumous Swellings. Concerning the Use of this Oil, in strumous Cases, *Borelli* writes thus: "The Scrophulæ are first to be excoriated by the Application of Arsenic; after which they must be corroded with Sublimate; and, last of all, this Oil must be used, which will become still more efficacious by an Addition of the Salt of Toads. Hence, perhaps, it was, that, according to many Authors, the ancient Arms of France were three Toads, since the Kings of that Nation undertook the Cure of the King's-evil, for which Toads are accounted so efficacious and powerful a Remedy." Others warmly recommend this Oil in Leprosies, and cutaneous Foulnesses. *Etmuller* gives us the following Account of it: Some, says he, prepare an excellent anodyne Oil, by infusing Toads in common Oil. Such an anodyne Oil is also prepared by putting live Toads into Water, in which sea Salt, or common Salt, has been dissolved, and allowing them to remain in it till they are dead. The Liquor is strain'd off, and then coagulated; but the Toads themselves are to be calcin'd with Salt, and fused with Lime; and, after the Fusion, the Lime is to be dissolved in Water, that the Fæces may be carried off. After this it is to be mix'd with Oil of sweet Almonds; this wonderfully removes Tumors, and mitigates Pains of every Kind, if the Parts affected are anointed with it. The *Oleum Bufonum Compositum*, also recommended for dissolving Tumors, and removing Dropsies, is, in *Schroder's Pharmacop.* directed to be prepared thus:

Take of the Oil of Sheeps Feet, any Quantity at Pleasure; boil it with Sulphur reduced to Powder, till the Oil assume a reddish Colour: Then separate the Sulphur from the Oil, in which, whilst as yet warm, let Toads be immersed and suffocated; and, after Expression, subject to Distillation.

B U F

The *Emplastrum ex Bufonibus* of *Knoffelius* is prepared thus :

Take of the Powder of the best Amber, half an Ounce ; and of Toads dried, and reduced to a Powder, one Ounce : Mix these together in an Alembic, and add as much Spirit of Wine as rises a Finger's Breadth above them. Draw off the Spirit in *Balneo Mariæ*, till what is left in the Alembic acquires the Consistence of a Magma. Fresh Spirit of Wine must be added three different times ; and the Quantity remaining is most commodiously reduced to the Consistence of a Plaster, by being mix'd with Melilot-plaster.

This Medicine is of singular Service, when applied in proper Cases to any of the Emunctories. When applied to the Throat, it also contributes to the Cure of spurious Quinsys. Others prepare a *Cerate of Toads*, for curing Incontinence of Urine. Their Method of preparing it is thus :

Take one Pound of Toads, half a Pound of Oil of Olives, and three Ounces of Wax ; let them boil, in a Pot, to the Consumption of half, or till it is of the Consistence of a Cerate, which is to be spread upon a Linen Cloth, and applied to the Region of the Kidneys.

Some suffocate live Toads in Spirit of Wine, or in *Malmsey* Wine ; after which they take them out of the Liquor, put them into a Retort, in order to obtain a Spirit, a volatile Salt, and an Oil. This Spirit, rectified with the volatile Salt, is an excellent Sudorific and Diuretic, and a Medicine highly commended in the Plague. The Spirit of Wine, on the other hand, or the *Malmsey* Wine, in which the Toads have been drowned, is accounted an excellent Alexipharmic, if used internally. The volatile, and not rectified, Spirit of Toads, applied tepid, twice or thrice a Day, with two or three Folds of a Linen Cloth, to cancerous Tumors, is, in *Eph. N. C. Cent. 4. o. 179.* said to have cured many of that Disorder. *Faber*, in his *Myrtheceum*, recommends

One Dram of the Salt of Toad-ashes, calcined to Whiteness, extracted either with the Water of *Cardus Benedictus*, or Scabious, or that of Lemon-peel, and mix'd with Treacle-water ; to be taken in the Morning fasting, with Cinnamon-water, as an Antidote against all Poisons, whether convey'd into the Constitution by poison'd Draughts, or owing to the Impurity of the Air. Externally used, this Preparation is said safely to cure pestilential Carbuncles and Cancers, if anointed with it.

As for the volatile Salt obtain'd by Distillation, I can't think, that, when it is duly depurated, it differs from the Salts of other Animals of a like Class and Nature ; but that a Salt can possibly be elixiated from the Ashes of Toads, is what I very much doubt. As for the Salt of Toads, and other Secrets prepared from them, *Daniel Ludovicus*, in his *Treatise de Pharmacia*, thinks, that such Preparations are, for the most part, handed down by Tradition, without having the Countenance and Sanction of Experiment to support them.

There is an anatomical Description of a Toad in *Valentinus's Amphitheatrum Zoeticum*. It is much disputed, whether Toads can be form'd in the Stomachs of Men : Some maintain the Affirmative, and assert, that they are generated from the Sperm or Eggs of Toads drank in Water ; or rather, that they are enlarged and nourish'd in the Stomach, and afterwards thrown up by Vomit, or discharged by Stool. But *Vallisneri* not only calls these Relations in Question, but openly pronounces, that Animals cannot be generated in the Stomachs of Men, by the Sperm of these Animals being convey'd into them ; for thus, says he, according to *Aristotle*, the *Primordia Geniturae*, or first Stamina of Generation, would be concocted. However curious and subtle the several Reasonings on this Subject may appear, 'tis yet certain, that the Eggs of Animals, laid and impregnated with their Embryos, may be farther perfected without the concurring Care and Nourishment of the Mother ; as is obvious not only from oviparous Fishes, but from most Insects, from whose Eggs, nourish'd in a proper Place, perfect Animals are brought into the World, without the Help and Assistance of the Mother. That Worms are generated in our Intestines, in consequence of the Eggs or Sperm of these Animals being convey'd into the Stomach, is an Opinion universally received in our Days : Neither, if we argue from Analogy, shall we find it improbable, that the Eggs of Toads, swallow'd in impure and marshy Water, have proved the original and immediate Cause of those Toads which have been generated in the Stomachs and Intestines of Men, and afterwards discharged ; unless, with *Vallisneri*, we assert, that the Worms found in human Bodies are nourish'd and propagated in us by the Worms communicated to us in the Uterus. The Observations concerning a live Toad, found in an Abscess of the human

B U G

Body, would not only favour, but absolutely confirm, this Opinion ; unless we had Histories of some Parts of Vegetables, and other Substances formerly swallow'd, being found in Abscesses of the Body. See *Eph. N. C. D. 1. a. 2. o. 103.* There are Cases of live Toads swallow'd during Sleep, and Accounts of the Symptoms arising thence, in *Eph. N. C. Cent. 3. o. 163.* and *Cent. 8. o. 84.*

BUFONITES, or *Bufonius Lapis*. It is also call'd *Lapis Rubetæ*, and *Myxolithus*, and *Batrachites* ; but the *English* have no other Name for it than the *Toad-stone*.

Some affirm, that these Stones are found in the Heads of old Toads, which have lived in dry Places ; and that the Stone is far more valuable when taken from the Toad immediately kill'd, than when it has been dead for a great while. The common People affirm, that an old Toad, if laid upon a red Cloth, will vomit up this Stone. Others, for obtaining the Stone, order a Toad to be exposed to the Heat of the Sun till it be parch'd with Thirst ; upon which they maintain it will vomit its Stone, as too great a Burden to its Head. Others, in order to procure the Stone, order a very large live Toad to be put into an earthen Vessel, full of small Holes ; and the Vessel, when close stopp'd, is to be buried among a large Collection of Ants, for the Space of a Month ; for then they affirm, that the Flesh of the Toad being destroy'd by the Ants, nothing remains but the Bones, and the Stone which was lodged in the Head. I cannot forbear looking upon these Accounts as so many Lyes, too palpable and glaring to deserve our Attention, much less our Assent. Our learned Countryman, Mr. *Bruten*, in his *Vulgar Errors*, thinks, that People have some Reason to seek for Stones in the Heads of Toads, because stony Concretions are often form'd in the Heads of many other Animals, but more especially Fishes and Snails ; but he doubts whether such a Stone is really found in the Head of the Toad ; and, if it is really there, he thinks it is the Cranium indurated or petrified. Others have asserted, that this Stone was produced from the viscid Spume deposited upon the Head of a large Toad by a Collection of Toads, lodged in a Cave in the Winter Season. Hence *Christophorus Salveldensis* informs us, that in *France* and *Spain* this Stone is only produced by a certain Species of horned Toad call'd *Borax*, and mark'd with Saffron-colour'd Spots, and blackish livid streaks. *Lanzonus*, from *Alb. Seba*, informs us, that the Origin of the Toad-stone is very uncertain, and involved in a kind of impenetrable Obscurity ; since, notwithstanding the large Number of Authors who have wrote concerning them, and endeavour'd by Examination to discover their Natures, not one has hitherto dar'd to assert, that he has, with his own Hands, extracted a Stone of this kind from the Head of a Toad, or even pretended to shew one obtain'd in that manner ; for *Vallisneri*, after all the Pains he could take, could by no means obtain any Stone from the Toad ; from which Circumstance, he thinks, he has Reason to conclude, that this Stone being found in the Toad is a Story, which, like some other Pieces of Imposture, has met with a kindly Welcome from the Credulity of Mankind. *Merret*, in his *Pinax Rerum Naturalium*, affirms, that the Stones call'd Toad-stones, and accounted Gems, are only certain Teeth, call'd the Grinders, in the *Lupus marinus*, or Sea-wolf.

Schröder, as *Dale* informs us, recommends the Toad-stone as a most valuable Medicine against the Plague, and all kinds of Poisons.

Some affirm, that the *Bufonites*, or Toad-stone, carried about any Person, preserves him against all kinds of Poison, and changes its Colour upon its coming near to a poison'd Cup. But, as these things are not found to hold in Fact, I think it enough just to have mention'd them ; only I must observe, with *Boerhaave*, that the *Bufonites*, in consequence of its being an alkaline Substance, may absorb Acids, and contribute to the Cure of Fluxes.

BUGANTIAE, Chilblains. *Castellus*. See PERNIC.

BUGLOSSUM, Offic. Park. Parad. 249. *Buglossum vulgare*, Raii Hist. 1. 495. Chab. 515. *Buglossum vulgare majus*, J. B. 3. 578. *Buglossum angustifolium majus*, C. B. Pin. 256. Tourn. Inst. 134. Boerh. Ind. A. 188. *Buglossum perenne majus sativum*, Hist. Oxon. 3. 438. *Buglossa vulgaris*, Ger. 655. Emac. 798. BUGLOSS. *Dale*.

Bugloss is like Mullein, but has a rough and blacker Leaf, like the Tongue of an Ox, spread on the Ground. This, put into Wine, is supposed to promote Cheerfulness. *Disjunctio, Lib. 4. Cap. 128.*

Bugloss, from a long, thick, brown Root, sends forth large, rough, hairy Leaves, less prickly than *Borrag*, half a Foot long, narrow, and sharp-pointed. The Stalks arise to the Height of two or three Feet ; full of short stiff Hairs, on which grow long narrow Leaves, set on without Foot-stalks. The Flowers grow several together, at the Top of the Branches, in long rough Calyces, of a single Leaf, cut into five round Partitions, of a purple Colour at their first appearing, and turning to a bright Blue as they stand, and are succeeded by four-corner'd rough Seed.

BUG

Bugloss is usually planted in Gardens, and flowers in *June* and *July*. The Leaves, Flowers, and sometimes the Root, are used.

Bugloss is much of the Nature of *Barrage*; being accounted cordial, and good to exhilarate the Spirits, and drive away Melancholy; and is useful against Hypochondriac and Hysterical Disorders.

The Flowers are among the Number of the Four Cordial Flowers. *Miller's Bot. Off.*

The Roots are very glutinous, and give a deep Tincture of Red to blue Paper; the Flowers give it but very little, and the Leaves hardly any at all: So that probably the Sal Ammoniac in this Plant is involved in a glutinous Juice, in which the Earth and Sulphur predominate. The *Bugloss* moistens, cools, and gives great Relief to melancholy Persons; it is good to dissipate the Defluxions of the Breast, and an obstinate Cough. The Juice is drank from three Ounces to six. The Pisan is taken by Glassefuls. The Roots and Leaves are used in cooling Broths, and this Plant cools no otherwise than by restoring the Motion of the Blood, which stagnates and heats the Parts wherein its Circulation is retarded. *Bugloss* Flowers are used after the manner of Tea. A Conserve is made of the Flowers. The Syrup made with the Juice of the Leaves of *Bugloss* gives great Relief to melancholy Persons: This Juice is employ'd in the simple *Byzantine* Syrup, and the compound one of *Mesue*. It enters also as an Ingredient in *Fernelius's* Syrup of Splenewort. *Martyn's Tournefort.*

The Conserve, Syrup, and distil'd Water of Bugloss, are all highly extol'd by *Faber* in his *Myrothecium*. *Etmuller* is of Opinion, that, from the Leaves or Flowers of Bugloss, an ophthalmic Liquor may be prepared, not inferior to that obtain'd from the Flowers of the Blue-bottle, or any other Liquor of the same Intention. *Forestus* tells us, from *Augerius*, that People who have us'd a Decoction of Bugloss for thirty Days, purging off the Superfluities, every seventh Day, with Cassia sometimes alone, and sometimes with an Addition of the *Confectio Hamech*, have been cured of the *Lues Venerea*. The *Pulvis Diabuglossi Myrsiciti*, in *Lemery's Pharmacop.* is prepared of Stimulants and Absorbents, the Aurum Potabile of *Myrsiciti*, and Sugar, mix'd with the Bark of Bugloss-root. This Powder is said to be possess'd of a cordial and clearing Quality, and may be exhibited to the Quantity of a Dram.

BUGLOSSUM SYLVESTRE, Offic. *Buglossum sylvestre minus*, C. B. Pin. 256. Park. Theat. 765. Tourn. Inf. 134. Boerh. Ind. A. 188. Elem. Bot. 110. *Buglossum sylvestre asperum minus annuum, foliis undulatis*, Hist. Oxon. 3. 439. *Buglossa sylvestris minor*, or, SMALL WILD BUGLOSS, Ger. Emac. 799. Rati Hist. 1. 494. Synop. 3. 227. Merc. Bot. 1. 24. Phyt. Brit. 17. Mer. Pin. 17. *Echium Fuchsii seu Borago sylvestris*, J. B. 3. 581. WILD BUGLOSS. Dale.

This is a much less Plant than the Garden Kind, growing not above a Foot high, with a small whitish Root, which dies yearly: The Leaves are long and narrow, but broader, and roundish-pointed at the End, rough and prickly, like *Borage*. The Stalks are thick, succulent, and prickly, clothed with narrow and sharp-pointed Leaves, set on without Foot-stalks. The Flowers grow on the Tops of the Stalks, in Shape like the Flowers of *Garden Bugloss*, but less, and of a light-blue Colour; the Seeds are also like the Seeds of that. It grows by Hedges and Way-sides, and among the Corn; and flowers in *May*.

This *Wild Bugloss* is but seldom used, tho' it is said to have the same Virtue with the Garden, but in a lower Degree, and, for want of that, may serve to supply its Place. *Miller's Bot. Off.*

Tragus made use of this Plant instead of *Borrag*; and the Apothecaries of *Antwerp* use it (according to *Lobel*) in the room of *Bugloss*. *Martyn's Tournefort.*

The other Species of *Bugloss*s, taken Notice of by Authors,
are,

The *Buglossum latifolium sempervirens*, *B. Buglossum folio Boraginis*, *Hispanicum*: *Borrigo sempervirens*, or the ever-green Borrage.

This Plant is said to be possess'd of an astringent Quality, which is stronger in the Root than in the Leaves, which, if drank in Wine, stop Fluxes.

Buglossum radice rubra.

Buglossium sylvestre, cauliculis procumbentibus.

Buglossum orientale, flore luteo, T. Cor. The Eastern Bugloss, with yellow Flowers.

Buglossum Creticum verrucosum perlatum quibusdam, II. R.
Par. Warty Bugloss from *Crete*.

Buglossum angustifolium majus, flore albo, C. B. P. Greater narrow-leaved Bugloss, with a white Flower.

Buglossum angustifolium majus, flore rubro aut variegato, C. B. P. Greater narrow-leaved Bugloss, with a red or variegated flower.

Buglossum foliis sinuosis, C. B. P. Bugloss with sinuated
Leaves.

VOL. I.

BUG

Buglossum sylvestre majus nigrum, C. B. P. Greater wild black Bugloss.

Buglossum Creticum majus, flore caeruleo purpurante, H. R. P.
Greater Bugloss of Candy, with a blue Flower, inclining to a
purple Colour.

Buglossum Lusitanicum, *Echii folio undulato*, Inst. R. H.
Portugal Bugloss, with an undulated Viper's Bugloss-leaf.

Buglossum Creticum minimum odoratum, flore vario eleganti,
H. R. Par. The least sweet-scented Candy Bugloss, with an
elegant Flower of various Colours.

Buglossum Crticum humifusum acaulon perenne, Echii folio angustissimo, Tourn. Cor. Perennial Candy Bugloss, lying spread upon the Ground, without Stalks, and with a very narrow Viper's Bugloss-leaf.

Buglossum Samium frutescens, foliis rorifmarini obscure virentibus, lucide hirsutis, Tourn. Cor. Shrubby Bugloss from the Island of Samos, with Rosemary-leaves, of a shining dark-green Colour, and hairy.

Buglossum orientale, cretulum, foliis undulatis, flore aeneæ
cærulea, Tourn. Cor. Upright Eastern Bugloss, with undu-
lated Leaves, and a Flower of a beautiful blue Colour.

Buglossum orientale angustifolium altissimum, Tourn. Cor.
The tallest Eastern Bugloss, with narrow Leaves.

BUGLOSSUS. A kind of Fish. The same with the Sole.
c SOLEA.

BUGONES, β. γόνες, βυγόνες, from βῶ, an Ox, and γίνομαι, to be bred or generated of. An Epithet for Bees, in Use among the Antients, who supposed these Insects to be bred of the Putrefaction of an Ox. *Varro de Re Rustica, Lib. 2. Cap. 5.*

BUGULA, CONSOLIDA MEDIA, Offic. *Bugula*,
MIDDLE CONSOUND, Ger. 500. Emac. 631. Merc.
Bot. 1. 24. Phyt. Brit. 17. Raii Hist. 1. 575. Synop. 3. 245.
Mer. Pin. 17. Dill. Cat. Giff. 49. Buxb. 46. Rupp. Flor. Jen.
187. Tourn. Inst. 208. Elem. Bot. 177. Boerb. Ind. A. 184.
Riv. Irr. Mon. *Bugula vulgaris sylvatica caerulea*, Hist.
Oxon. 3. 391. *Bugula vulgaris, flore caerulea*, Park. Theat.
525. *Bugula Consolida media pratensis caerulea*, C. B. Pin.
260. *Consolida media, quibusdam Bugula*, J. B. 3. 430. *Conso-*
lida media, symphytum medium, Bugula, Chab. 474. BUGLE.
Dale.

Bugle has a small flinging Root, sending forth several Stalks of different Forms ; some roundish, and lying along, and creeping on the Ground, sending out fibrous Roots from the Joints ; the other, which grow erect, and bear the Flowers, are square, beset with but few Leaves, standing in Pairs opposite to one another ; the lower on long Foot-stalks, the upper on very short ones ; they are oblong, somewhat crenated about the Edges, an Inch and half long, and an Inch broad, of a dull-green Colour, and oftentimes with a Dash of Purple : The Stalks are eight or nine Inches high, having the Flowers growing at the Top, in loose Spikes, whorle-fashion, with two small brownish Leaves under each Whorle. They are of a blue Colour, and labiated, but have the Galea so small, that it is hardly discernible. When the Flowers are past, they are succeeded by small longish Seeds, in five-pointed Calyces. It grows in Woods and Hedges, and flowers in *May*.

Bugle is a noted vulnerary Plant, and us'd inwardly and outwardly for all kind of Bruises, Wounds, and Contusions, as likewise for Sores and Ulcers, for spitting of Blood, and Hemorrhages from any Part. It is also aperitive and diuretic, and good to open Obstructions of the Kidneys, and provoke Urine. *Miller's Bot. Off.*

This Plant is bitter, deterfive, and gives a faint-red Colour to blue Paper. It is employ'd in vulnerary Potions, Piffans, and Apozems; the Dysentery, Fluor Albus, and Difcates of the Throat, Ulcers and Thrufhes in the Mouth. The clarify'd Juice of *Bugle* has the fame Virtues; it is us'd in Plaifters. *Camerarius* and *Dodonæus* prefcrib'd it for Obftructions of the Liver. It contains fome Sal Ammoniac involv'd in Sulphur. *Martyn's Tournefort.*

On account of its abstergent Qualities, it is accounted an excellent Vulnerary, and is very much us'd not only in vulnerary Potions, but also in Plaisters, particularly among the *French*, with whom it is a Proverb, that the Person who has Bugle and Sanicle has no Occasion for a Surgeon. In consequence of its abstergent Virtue, it is also said to be a present Remedy in spreading Aphthæ, and Ulcers of the Mouth: That an Ointment made of the Leaves of Bugle, Scabious, and Sanicle, bruis'd, boil'd in Lard till they become dry, and then express'd, is excellent for the Cure of all Ulcers, Contusions, and Wounds, we are told by *Parkinson*, who recommended the Use of it to those charitable Ladies, whose Compassion for their Fellow-creatures prompts them to relieve the Disorders of the Necessitous. *König* affirms, that, by means of its Bitterness, he has known it to heal scrophulous Ulcers in the Neck. From what has been advanc'd, we may easily perceive the Reason why this Plant is said to be diuretic, and why it is recommended in Spittings of Blood, Dysenteries, and the Fluor Albus; for, when coarse, tenacious, and viscid Substances are
10 U attenuated,

attenuated, and Obstructions remov'd, in order to make way for a free Circulation of the Juices, the Emunctories are not only open'd, but the spasmodic Contractions, which are the immediate Cause of the morbid Fluxions, being remov'd, these Disorders are cur'd. The Herb Bugle is most properly us'd in Decoctions, or its express'd Juice may be us'd, which is highly saponaceous and opening. The distil'd Water is not possess'd of very eminent Medicinal Qualities.

Potterius recommends a Decoction of Bugle, made with Mutton-broth, as an excellent Medicine in a *Phthisis*, and internal Ulcers; affirming that it gently relaxes the Belly, wonderfully recruits the Liver, and fortifies other Parts. *Et-muller* informs us, that the *Italians*, in the Spring, cleanse the Root and Leaves of Bugle, and use them as a Sallad, which is not only grateful to the Palate, but acceptable on another Account, which is, that it seems calculated to prevent Cachexies. The same Author also informs us, that its Juice is an excellent Medicine in malignant Ulcers. *Rieger*.

The several Species of Bugle mention'd by Authors, besides the preceding, are

Bugula flore cinereo vel albo, Infl. R. H. Bugle with a white or ash-colour'd Flower.

Bugula alpina maxima, Infl. R. H. The greatest Bugle of the Alps.

Bugula sylvestris villosa, flore caeruleo, Infl. R. H. Hairy Wood-bugle, with a blue Flower.

Bugula sylvestris villosa, flore suaverubente, Infl. R. H. Hairy Wood-bugle, with a fine red Flower.

Bugula sylvestris villosa, flore albo, Infl. R. H. Hairy Wood-bugle, with a white Flower.

Bugula Samia verna, boraginis foliis, flore inverso, & caeruleo flavescente, Tourn. Cor. Samian Spring Bugle, with a Borrage-leaf, and an inverted Flower of a yellowish-blue Colour.

Bugula orientalis villosa, flore inverso caeruleo, alba macula notata, Tourn. Cor. Hairy Eastern Bugle, with an inverted blue Flower, spotted with White.

Bugula orientalis villosa, flore inverso candido, cum oris purpureis, Tourn. Cor. Hairy Eastern Bugle, with an inverted white Flower, edged with Purple.

Bugula orientalis, flore ex violaceo purpurascente, Tourn. Cor. Eastern Bugle, with a purplish violet-colour'd Flower.

Bugula orientalis longifolia, flore majore intenso caeruleo, Tourn. Cor. Eastern Bugle, with a long leaf, and a larger Flower of an intense blue Colour.

BULAPATHIUM, *βουλπαθιον*, from the intensive Particle *βα*, and *παθω*, a Dock. A Species of Dock. See LAPATHIUM.

BULBASPHEDELUS. An Asphodel with a bulbous Root. See ASPHODELUS.

BULBINA, BULBINE. Diminutives from BULBUS, which see.

BULBOCASTANUM, Offic. J. B. 3. 30. Ger. 906. Phyt. Brit. 17. Buxb. 47. Raii Hist. 1. 440. Synop. 3. 209. Chab. 385. Mor. Umb. 5. *Bulbocastanum majus & minus*, SMALL AND GREAT EARTH-NUT, Ger. Emac. 1865. *Bulbocastanum minus*, Mer. Pin. 17. *Bulbocastanum majus, folia Apri*, C. B. Pin. 162. Hist. Oxon. 3. 274. Boerh. Ind. A. 70. Tourn. Infl. 37. Elem. Bot. 257. *Nucula terrestrius major & minor*, Park. Theat. 893. EARTH-NUT, KIPPER-NUT, PIG-NUT, and HAWK-NUT. Dale.

This Plant has a Root as big as a large Nutmeg, hard and tuberos, of a whitish Colour, shooting out Fibres from the Bottom and Sides; the lower Leaves are wing'd, cut into several Divisions of Leaves, finer and smaller than those of Meadow-saxifrage; the Stalk grows to be more than a Foot high, having one Leaf about the Middle, which is as fine and slender as Fennel, having the like Leaves at every Division of the Branches; on the Tops of which grow thin Umbels of small white Flowers, each of which is succeeded by two smooth long Seeds. It grows in sandy gravelly Places, and flowers in May.

The Root, which is only us'd, and either roasted or raw, is of a pleasant sweetish Taste, and is accounted nourishing, and to be a Provocative to Venery. It is likewise commended against the Strangury and bloody Urine. *Miller's Bot. Off.*

The Root of this Plant, when the Skin of it is taken off, proves a nourishing Food, but is subje& to produce Crudities and Flatulences, in consequence of its being with some Difficulty concocted. It is also emollient, and inspissates the Juices; for which Reason the Use of it is often recommended to those whose Fluids are too thin, and to such as are phthisical, consumptive, and emaciated. *Alexander Trallianus*, L. 7. C. 2. informs us, that the Bulbocastanum, or Earth-nut, is of great Service, prepar'd in the Food of those who are afflicted with a Spitting of Blood. *Bambine*, from *Tragus*, tells us, that the excoriated Root of the Earth-nut, boil'd in Flesh-broth, with a little Pepper, is a Food which is not only sweet and nourishing, but also proves a Stimulus to Venery. The Seeds of this Plant are said to be possess'd of a diuretic Quality.

Miller enumerates six Species of the *Bulbocastanum*.

BULBOCODIUM *vulgatius*, J. B. *Bulbocodium*, Theophr. *Codianum vel Codiaminum flore codii*, i. e. *Campanulæ*, Gesn. Hor. *Bulbus sylvestris et Codiaminum*, Gesn. Hor. *Narcissus luteus sylvestris*, Dod. *Pseudo-narcissus*, Offic. *Et Anglicus*, Ger. 115. Emac. 113. *Pseudo-narcissus Anglicus vulgaris*, Park. Parad. 100. *Narcissus luteus*, Merc. Bot. 1. 53. Phyt. Brit. 79. *Narcissus seu Pseudo-narcissus Anglicus*, Mer. Pin. 83. *Narcissus sylvestris pallidus, calyce luteo*, C. B. Pin. 52. Raii Hist. 2. 1131. Synop. 3. 371. Dil. Cat. Giff. 40. Tourn. Infl. 356. *Bulbocodium*, Chab. 2. 2. WILD DAFFODIL. *Lemery. Dale.*

Bulbocodium is a Species of wild Narcissus, about half a Foot high, with long strait Leaves, bearing on the Top of its Stalk a beautiful, monopetalous, bell-shap'd, pale Flower, in a yellow, gold-colour'd, shining Calyx, which is inclosed in a membranaceous Sheath, and surrounded with six pale pointed Leaves. The Flower is succeeded by a round Fruit, with three Eminences; and its Inside divided into three Capsules, which contain black, and almost round, Seeds. The Root is bulbous, and viscid to the Taste and Touch, with a kind of Sweetness, mix'd with a little Acrimony. It grows by the Sides of Fields, in Meadows and moist Places, and in Woods and Gardens. The Plant abounds with Oil, and essential Salt.

The Root is purgative and aperitive, and evacuates viscid Phlegm. The Dose is two Drams in an Infusion. *Lemery des Drogues.*

It has the same Virtues as the Narcissus, or common pale Daffodil. *Dale.*

The Root is emetic, and hurtful to the Nerves; but, outwardly, is said to be good for Ambustions, Wounds, and Hernias. *Clusius* assures us, that the Root of every Species of Narcissus excites Vomiting, as he has often experienc'd; and *Lobel* says, that the Peasants use to vomit themselves with the Root of Bulbocodium. *M. Herman* says, the bruise'd Leaves are good for an Erysipelas. *Raii Hist. Plant.*

BULBONACH, Offic. Phyt. Brit. 18. *Bulbonac annuum, siliqua rotundiore*, Rupp. Flor. Jen. 70. *Bulbonac vulgarissimæ, viola lunaris, viola latifolia*, Phyt. Brit. 129. *Viola lunaris seu Bulbonach*, Ger. 377. Emac. 464. Park. Theat. 1366. *Viola lunaris vulgaris*, Ejusd. Parad. 265. *Viola lunaria major, siliqua rotunda*, C. B. Pin. 203. Raii Hist. 1. 787. *Lunaria major, siliqua rotundiore*, J. B. 2. 881. Tourn. Infl. 218. Elem. Bot. 187. Boerh. Ind. A. 2. 5. *Leucoium lunatum, seu Lunarium latifolium majus annuum, siliqua rotunda, flore violaceo seu subcaeruleo*, Hist. Oxon. 2. 245. Herm. Cat. 368. SATFIN or HONESTY. *Dale.*

The Stalk of it grows to the Height of a Cubit and a half, or more, and sometimes to the Thickness of the little Finger, of an azure or dark-red Colour, and hairy. The Leaves are like the Nettle, but sometimes twice or thrice as large, hairy, serrated, situated sometimes opposite, and sometimes single, where the Branches divide, and tasting like Pot-herbs. The Branches, and the Summit of the Stalk, are laden with Flowers, disposed almost in the same Order as in the Cabbage, of a purplish or carnation Colour, of the Size of those of the common Cabbage, and less than those of the *Leucoium*, but like them in other respects, of a faint Smell, with a whitish and remarkable Unguis on the Inside. Four greenish Stamina, with yellow or pale Apices, but just emerge out of the Calyx, which is of an oblong Form, red, and composed of two larger and two smaller Leaves, being like the Calyx of the *Leucoium*. The Pods are wide, roundish, flat, bivalv'd, a silver-colour'd Rim passing between the exterior Laminæ on both Sides. They shoot forth a Filament at the upper End, and contain a double Row of flat orbicular Seeds. The Root is stumous, or glandulous, whence it takes its Name, *Bulbonach*. The Seed is of a dark Red, and very large for the Kind, and of a very acrid Taste, mix'd with some Bitterness. It keeps its Leaves during Winter. The second Year of its Planting, the Stalk drops, and falls to the Ground, and, when the Seed is ripe, perishes. It grows plentifully in several Parts of *Germany* and *Hungary*; in *England* it is cultivated in Gardens.

It is of a hot, bitter, and acrimonious Taste, especially the Seeds, tho' the Roots are eaten in Sallads. It absterges, moderately heats, and provokes Urine, like the *Rapunculus*. The Powder of the bitterest Seed is given, in a Water appropriated to the Distemper, for the Epilepsy. A Surgeon of *Switzerland*, with the bruise'd Leaves of the perennial *Lunaria*, or Bulbonach, and *Saniele*, prepar'd a vulnerary Ointment of no contemptible Virtue. *Raii Hist. Plant.*

BULBUS.

The *Bulbus esculentus*, being commonly eaten, is known to every Body. The reddish Sort, which is brought from *Africa*, is agreeable to the Stomach and Belly; but the bitter and squilaceous Kind is more friendly to the Stomach, and helps Concoction.

The *Bulbi* are all acrimonious and heating, stimulating to Venery, inducing a Roughness on the Tongue and Tonsils, nutritive,

nutritive, and increasing the Flesh, but they generate Inflammations. They are effectual, in Cataplasms, for Luxations, Contusions, Darts, or other such Weapons, lodg'd in the Flesh, and for Pains of the Joints. They are good also in a Gangrene, and for the Gout, either alone, or mix'd with Honey. A Cataplasin of Bulbi, with Honey and pounded Pepper, is successfully apply'd to the œdematous Tumors of hydropical Persons, and to the Bite of a Dog. They restrain Sweating, and mitigate the Pain of the Stomach. Mix'd with roasted Nitre, they absterge the Scurf and Achores of the Head. Alone, or mix'd with Egg-shells, they take off the Marks of Blows, or Spots (*ιόχες*) in the Face; and, with Honey or Vinegar, they clear the same Part of Freckles. Mix'd with *Polea*, they heal Fractures (*θλάσματα*) about the Ears, and Contusions of the Nails. Roasted in hot Cinders, and apply'd, with the Ashes of the calcin'd Heads of Mæne, (the Cackarel Fish, *Dale*) they remove a Ficus. Burnt, and mix'd with *Alyonium*, it clears the Skin of Sun-burning, and black Cicatrices, if rubb'd on the Parts exposed to the Sun. Boil'd in Vinegar, and eaten, they are effectual in Ruptures. It is advisable to abstain from a plentiful Use of them, because they affect the nervous System. *Dioscorides*, Lib. 2. Cap. 200.

There is a Plant of the bulbous Kind, which, as *Alpagus*, in his Lexicon, observes, is call'd, by the *Arabians*, *Arzi Ahil*, or *Arz Amil*. What it is, he explains from some *Arabian* Expositors, who say it is a Bulb of the Onion-kind, of a sweet Taste, grows in the Mountains, and is call'd, by the People of *Damascus*, *Arzi Ahil*, or *Hafnil*; and that it is eaten in the Spring, on account of its Sweetness. *Alpagus* adds, That this Bulb was of the Shape and Size of the Pear commonly call'd the Muscade, and was surround'd with a fine hairy Tegument, in manner of a Net, from which protect'd many long and fine Leaves; that it grows on Mountains, and was call'd by the *Arabian* Naturalists *Bulbus*. This is the *Bulbus* which *Avicenna* call'd by that Name, and says is the same as the *Bulbus esculentus* of the *Greeks*, and that it is of the Shape and Size of the Bulb of the Narcissus, has a Leaf like a Leek, and a Flower like a Violet.

Dioscorides has given no Description of the *Bulbus esculentus*, and, by that means, has put all our Botanists to the Trouble of searching it out, and they have not yet found it. *Avicenna* takes it for what we have said above; tho' he shews, at the same time, that the Matter is no less doubtful among the *Arabians*. Some, he says, think it to be the *Azzir*, which is a kind of Onion, which has the same Virtues, he tells us, as another Onion call'd *Bassal Alfar*, that is, the *Mousse-onion*. Others, he says, take it for the *Cepe Alhalkair*; for so *Alpagus*, in his Lexicon, reads the Words, and expounds them of a small oblong Species of Onion, which the *Venetians* commonly call *Scalagna*, and is the *Cepa Ascalonica* of the *Antients*.

Since there are so many Species of Bulbs, it is no wonder that the *Arabians* are not certain on which to fix for the *βούβος ἐσώσιμος*, "*Bulbus esculentus*," of the *Greeks*. *Avicenna* takes it as above, and calls it also *Basal Macul*. *Basal* is a Name common to all the cepaceous Kinds, from the *Hebrew* בצל, which signifies an Onion. *Scrapio* takes the *Basal Azzir* for the *Bulbus*, and quotes the Place of *Dioscorides*, concerning the *Bulbus*, under that Head, which he expounds by an Onion without Coats. But the *Arabian* Interpreters, whose Opinion is given us by *Alpagus*, have confounded the Bulb of the *Egyptian* Lotus, or *Nymphaea* of *Nile*, which was call'd *Arz Elmil*, or *Hafnil*, with that eatable Bulb, which was call'd by the *Arabians* absolutely *Bulbus*.

Dioscorides seems to make two Sorts of the *Bulbus esculentus*; one sweet, and the other bitter, and favouring of the Scallion, or Squilla. *Avicenna*, in his Chapter of the *Bulbus esculentus*, towards the End, quotes the Words of *Dioscorides*, and, in like manner, makes two Kinds, the sweet, and the bitter; the sweet, which is red, is good for the Stomach, but the bitter Kind is better. *Pliny* tells us, that the *Bulbi* differ in Bigness, Colour, and Sweetness. Some Sorts are eaten raw, which, for that Reason, must be sweet; these grow, he says, in the *Taurica Chersonesus*. Next in Goodness, of the same kind, are the *African*, and, after them, the *Apulian*. The *African*, therefore, must be sweet. *Dioscorides* makes the *African* Bulbi red and sweet; on the contrary, *Heraclides Tarentinus*, in *Athenæus*, says they were white and bitter. These are Contradictions; yet *Dioscorides* mentions *Heraclides Tarentinus* as one of his Authors. The ancient *Greeks* highly commend the Bulbus of *Megara*. *Theophrastus* writes, that Bulbs, in some Places, are so sweet, that they are eaten raw, as in the *Taurica Chersonesus*. At present we are ignorant of the *Bulbus esculentus* of the *Antients*, as well of the sweet as the bitter Kind; nor have our Botanists observ'd, that *Dioscorides* makes two Sorts of *Bulbs*, besides the *Bulbus vomitorius*, which are the sweet and red, brought out of *Africa*, and the common bitter Sort, which were known to every body.

There was also a sweet *Bulbine*, which *Theophrastus* does not reckon among the *βούβοι* (*Bulbi*) but the *βούβωδον* (*Bulbodea*). And, indeed, the *βούβωδον* is so call'd, from its Similitude to

the *βούβος*. Thus we meet with *καρδαμύνη, ἐλλεβορίνη*, (*Cardamine, Helleborine*) and the like. *Heraclides Tarentinus*, before quoted in *Athenæus*, says, that what we call the *Bulbine* is of better Juice than the *Bulbus*, but not so agreeable to the Stomach, because it had somewhat of a pinguious Sweetness. Perhaps this *Bulbine* was the sweet *Bulbus* of *Dioscorides*, which, he says, was less agreeable to the Stomach than the bitter Sort.

Pliny, Lib. 20. Cap. 9. writes, that the *Greeks* call'd by the Name of *Bulbine* an Herb which had the Leaves of a Leek, and a red Bulb. On the contrary, *Matron*, in *Athenæus*, makes it have a Bulb whiter than Snow; and *Theophrastus* reckons the *Bulbine* among those bulbaceous Plants which were white, and not inclos'd within several Coats; such, he says, grew in the *Taurica Chersonesus*.

They who take the *Cepa Ascalonica* for the *Bulbus* of the *Antients*, are utterly in the wrong. The *Antients* plainly distinguish between what was properly call'd *βούβος*, and every thing of the cepaceous Kind; and *Theophrastus* even reckons among the *βούβωδον* some things which were different from the *βούβος*, properly so call'd. He calls them *Bulbodea*, from the Similitude, because they had a round Root like the *Bulbus*, tho' not inclos'd in Scales or Coats. The *Bulbus*, therefore, consists of several Coats, one within another. In another Place he says, of the Root of the Narcissus, that it was much like the *Bulbus*, *πλήν ἢ λεπτὰ σκάλιν*, "but not consisting of Scales or Coats." The *Arabians* knew no more of the *Bulbus* than the *Moderns*, as appears from the Chapter of *Avicenna* on the *Bulbus esculentus*; and they retain'd the *Greek* Term *βούβος*, because they knew not how to give a Name to a thing of which they were wholly ignorant. *Samuël de Hemonym*, 151. latr. Cap. 114.

Paulus Aegineta, L. 1. C. 76. informs us, that the "*Bulbs* are of an astringent abstergent Quality, and procure an Appetite; that they strengthen the Stomach, and promote the Expectoration of viscid Humours; that, when twice boil'd, they become more nourishing, but lose their emollient Quality, since, by that means, their Bitterness is destroy'd; that they increase the Quantity of the seminal Fluid, and, consequently, prove a Stimulus to Venery, if us'd in large Quantities; that they excite Inflammations and Gripes; but that, if eaten with Oil, Garum, and Vinegar, they are very grateful to the Palate, easily digested by the Stomach, cease to prove flatulent, and nourish very much."

Matthiæus informs us, that *Galen* accounted the *Bulbus esculentus* cold; and thought that it render'd the Juices viscid, was with Difficulty concocted, produc'd Flatulences, and prov'd a Stimulus to Venery; but that, when it was apply'd by way of Ointment, it cleaved and agglutinated, in consequence of its Bitterness, and astringent Qualities. *Celsus*, L. 2. C. 18. reckons all the *Bulbi* among the Pot-herbs *valentissimi generis*, by which, in all Probability, he means such as afford a great deal of Nourishment; and, in the twenty-third Chapter of the same Book, he asserts that they generate a thick Phlegm. 'Tis no difficult Task to assign a Reason for the *Bulbi* being thought of hard Digestion, and calculated to inspissate the Humours, since they themselves abound with a tough and viscid Juice. That they were us'd by the *Antients* in Food, as a Stimulus to Venery, is a Circumstance not to be doubted. Accordingly *Martial*, in the seventy-fifth Epigram of his third Book, gives them the Epithet *Salaces*, in consequence of the Effects they produc'd in the Constitution; and, in the thirty-fourth Epigram of the same Book, he gives the following Advice:

*Cum sit anus conjux, & sint tibi mortua membra,
Nil aliud bulbis quam sature esse potes.*

And *Ovid*, when prescribing for the Cure of Love, he enumerates such things as are to be abstain'd from, he says thus:

*Daunius an Libycis bulbus tibi missus ab oris,
An veniat Megaris, nescius annis erit.*

BULBUS VOMITORII, Offic. *Muscari Clusii*, ASI-COLOUR'D GRAPE-FLOWER, Ger. 105. Emac. 120. *Muscari obsoletiore flore*, Tourne. Inst. 348. *Muscari majus, obsoletiore flore*, Elem. Bot. 288. *Muscari obsoletiore flore ex purpurea vivente*, Boerh. Ind. A. 2. 114. *Hyacinthus racemosus majus*, C. B. Pin. 43. Raii Hist. 2. 1162. *Hyacinthus racemosus seu botryoides majus, seu Muscari majus, obsoletiore flore*, Hill. Oxon. 2. 372. *Hyacinthus botryoides majus majusculatus, five Muscari flore cinereo*, Park. Parad. 112. *Hyacinthus odoratissimus, dictus Tibaldi & Muscari*, J. B. 2. 578. *Hyacinthus odoratissimus, Tibaldi & Muscari dictus*, Cist. 207. MUSK-GRAPE-FLOWER. Dale.

The *Bulbus* called *vomitorius* has a Leaf as flexible as Leather, and much longer than those of the *Bulbus esculentus*; its Root indeed is like the Root of that Bulbus, but cover'd with a black Rind.

This Root eaten alone, or a Decoction thereof drank, is a Remedy for Defects of the Bladder, and provokes Vomiting. *Dioscorides, Lib. 2. Cap. 201.*

It produces five or six oblong Leaves, which spread themselves on the Ground in a disorderly manner, and are obliquely inflected, channelled, and sufficiently substantial and juicy, being very like the Leaves of the larger tufted Hyacinth, and shewing their fine Stamina, even when they are broken, but not so abundantly as the Leaves of the *Hyacinthus Eriophorus*, which, when first they bud, turn purple or whitish, and sometimes become of a very beautiful Red. From the midst of the Leaves in the Spring-time shoots up a pretty thick, round, and naked Stalk, very weak in proportion to its Thickness, and surrounded with Clusters of Flowers, from the Middle almost to the Top. These Flowers pretty well resemble a small Drinking-cup, and are at first purplish or green, afterwards of a Purple inclining to Green, or of a whitish-green, sometimes of a sort of Sea-green Colour; sometimes they are black in the Beginning, or of a deep Purple, and afterwards turn pale or yellowish; or they are pale at first, and grow yellow afterwards, and, when they begin to wither, turn black, or dark-colour'd; and this kind are more bluntly mucronated than others. Sometimes, when they begin to wither, they emit a most grateful Odour, almost like that of Musk or Spices. There are some found of a Snow-white Colour, and of a most lively Red, but I had never the Fortune to meet with any such. They are all succeeded by very large, triangular, and as it were pinnated Heads, containing black round Seed, of the Size of the *Orabus*. The Root is large, whitish, perennial, and composed of many Coats like the Onion, and strengthen'd with many thick Fibres, which proceed from its Base, and are perennial, not withering and perishing every Year, like the Fibres of the Hyacinths, Narcissuses, Tulips, Lilies, and many other bulbous Plants. The Flowers being to unfold from the Base, as in other Plants of the bulbous kind, which bear their Flowers in Spikes or Clusters.

It grows in the Gardens about *Constantinople* plentifully, and beyond the *Bosporus* in *Asia*, from whence according to *Clusius*, it was originally imported into *Europe*. *Raii Hist. Plant.*

It flowers in the Month of *April*, and its Root is only in Use. When chew'd, or drank by way of Decoction, it cures Disorders of the Bladder.

See BULBUS, in the Explication of Botanical Terms in BOTANY.

BULEUMA, βύλευμα. The same as *Consilium*, which see.

BULIMIA, BULIMIASIS, BULIMUS. The same as BOULIMOS, which see.

BULITHOS, βύλιθος, from βῦς, an Ox, and λίθος, a Stone. A Stone often found not only in the Gall-bladder, but also in the Kidneys and Bladder of an Ox; so that *Aristotle* seems to be mistaken, *Secl. 10. Prob. 42.* where he labours to give a Reason, why Man only is afflicted with the Stone. *Castellus*. See BOS.

BULLA, πομφόλυξ. A Bubble. It is generated, according to *Galen, Com. in Lib. 7. Aph. 34.* "by a Flatus included within a humid Substance." This happens most frequently when this Humid has something of Tenacity, which renders the Bubble more stable, and less liable to Dissolution. Πομφόλυγες (Bubbles) in *Hesychius* are expounded αἰὲν τῷ ὕδατι γινόμεναι ἀδύσεις, ἢ φουσημαῖα ὕδατος, "Tumors generated in the Water, or flatulent Swellings of the Water." In *Hippocrates, Lib. 7. Aph. 34.* ἀκρίσοις δ' ἐπὶ τοῖσιν οὐρῶσιν ἐξίστανται πομφόλυγες, νεφρίτικα σημαίνουσι, καὶ μακρὴν ἀρρώστιον ἔσσεσθαι. "Bubbles arising in the Urine indicate Nephritic Disorders, and a long Disease."

Bulla is used to signify Pustules arising in the Eye, or proceeding from Combustions in any Part. *Galen. de Simp. Fac. Lib. 6. & 9.*

BULIMENTA. A Word used by some Chymists to signify Gold and Silver Vessels, as they appear after Washing and Scouring, that is, with a glittering Brightness. *Castellus*.

BUMELIA, βυμελία, from βῦς, a Particle adding Greatness, and μελία, an Ash. A Species of Ash. See FRAXINUS. *Blancard*.

BUNA. See COFFEE.

BUNIAS, *Napus dulcis*, Offic. *Napus*, J. B. 2. 842. Chab. 272. *Raii Hist.* 1. 801. *Park. Parad.* 509. *Napus sativa*, C. B. Pin. 95. *Hist. Oxon.* 2. 114. *Rupp. Flor. Jen.* 65. *Buxb.* 231. *Bunias*, Ger. 185. *Emac.* 235. NAVIEW-GENTLE. *Dale*.

The boiled Root of the *Bunias* generates Inflations, and affords but little Nourishment. The Seed drank prevents the ill Effects of Poisons, for which Purpose it is mixed in Antidotes. The Root is preserv'd as a Pickle. *Dioscorides, Lib. 2. Cap. 136.*

Those Leaves of the *Garden-naveu*, which lie on the Ground, are long and large, deeply cut in, and in Shape like a Turnep-leaf, but less, and very little hairy. The Stalks

grow to be two or three Foot high, beset with smaller Leaves, smooth as well as the Stalk, and little or nothing jagged, especially those which grow higher upon the Branches, which are round and broad at Bottom, and encompass the Stalk, ending in a narrow Point of a bluish-green Colour. The Flowers grow many together on the Tops of the Stalks, made of four bright yellow Leaves, and are succeeded by long cylindrical Pods, containing small round black Seed; the Root is white, longer and slenderer than a Turnep, but much like it in Taste. It is sown in Gardens, and flowers in *April*; the Root is used in Food, and the Seed in Physic.

The Seed is commended by the Antients as good against all kinds of Poisons, and the Bites of venomous Creatures, to provoke Urine, and the Menfes. *Matthiolus* extols it against all kinds of infectious Distempers, to expel Malignity, and cheer the Heart, as also to drive out the Small-pox and Measles. It is an Ingredient in the *Theriaca Andromachi*. *Miller's Bot. Off.*

These Seeds are said to be heating, drying, absterging, aperitive, and digestive; and to be Enemies to Venery.

NAPUS SYLVESTRIS, Offic. C. B. Pin. 95. *Raii Hist.* 1. 802. *Synop.* 3. 295. J. B. 2. 843. Chab. 272. *Hist. Oxon.* 2. 114. *Rupp. Flor. Jen.* 65. *Dill. Cat. Giff.* 51. *Buxb.* 232. *Napus, Bunias*, Merc. Bot. 1. 52. *Phyt. Brit.* 79. *Bunias sylvestris Lobelio*, Ger. 181. *Emac.* 235. *Bunias five Napus sylvestris*, Park. Theat. 865. Mer. Pin. 17. RAPE.

It grows amongst Corn, and on the Sides of Ditches. It flowers in Summer. The Seed is in Use. It agrees with the former in Virtues, but is somewhat more acrid. *Dale*.

This is a much less Plant than the Garden Naveu, having a long, slender, whitish, sticky Root, full of Fibres at the Bottom; the lower Leaves are less, and much jagged, and round at the Ends. The Stalks are smooth, and beset with the like smaller Leaves; the Flowers and Seed are much alike. *Miller's Bot. Off.*

PSEUDO-BUNIAM, Offic. *Napus sylvestris Cretica*, C. B. Pin. 95. Park. Theat. 865. CANDY WILD NAVIEW.

The Herb is only in Use, and is found in the Island of *Crete*. According to *Dioscorides* it cures Gripes, Stranguries, and Pains of the Sides. It also dissolves scrophulous Tumors, if mix'd with Salt and Wine, and apply'd to them by way of Ointment.

'Tis a Controversy hotly agitated among the Literati, whether the Seeds of the *Napus dulcis*, or those of the *Napus sylvestris*, ought to be used in the Composition of the *Venice Treacle*. The Seeds of the former are for this Purpose used in our Shops. In this they imitate the *Greeks*; for *Dioscorides* makes not the least mention of any of the *Napus sylvestris*. *Andromachus* the elder, also, orders the Seeds of the *Napus dulcis*; and *Matthiolus*, in the fifth Book of his Epistles to *Balthaserus*, affirms, that the Seeds of the *Napus dulcis* resist Poison more powerfully than those of the *Napus sylvestris*. *Andromachus* the younger, when enumerating the several Simples which enter the Composition of the *Theriaca*, commends the Seeds of the *Napus sylvestris*, as being more acrid, and of Consequence more efficacious in promoting the Intention of the Medicine. But *Galen*, in his first Book *de Antidotis*, differs from both these Opinions, and recommends the Seeds of the *Pseudo-Bunium*, as most proper for composing the *Theriaca*. *Dale*.

BUNITES Vinum, βυνίτης δίνος, Wine of *Bunium*, is made by putting two Drams of *Bunium* into two Quarts of Must, and letting it stand for a Quarter of a Year, and then straining it off.

It is good in Disorders of the Stomach, and relieves such as are fatigu'd with Riding or Fencing. *Dioscorides, Lib. 5. Cap. 56.*

BUNIAM, βύνιον. Wild Parsley. See APIUM.

BUPEINA, βύπεινα, from βῦ the augmentative Particle, and πεινάω, to hunger. The same as BOULIMOS, which see.

BUPHAGOS, βύφαγος. The Name of an Antidote in *Marcellus Empiricus, Cap. 29.* against the Colic.

BUPHTHALMUM, Offic. Chab. 364. *Buphtthalmum cotulae folio*, C. B. 134. *Raii Hist.* 1. 341. *Buphtthalmum peregrinum*, Alp. Exot. 221. *Buphtthalmum alterum, cotulae folio*, Park. 1371. *Buphtthalmum peregrinum Alpino*, Ejusd. 1371. *Buphtthalmum verum*, Ger. 607. *Emac.* 746. *Buphtthalmum tenuifolium, folio Millefolii fere*, J. B. 3. 124. *Hist. Oxon.* 3. 16. *Chrysanthemum cotulae folio*, Her. Cat. 145. *Chrysanthemum folio cotulae*, Flor. 2. 46. *Chrysanthemum alterum, cotulae latiori folio*, P. Al. *Cotula flore luteo radiata*, Elem. Bot. 396. *Tourn. Inst.* 495. OX-EYE.

The *Buphtthalmum*, by some called *Cachlan*, sends forth tender, and somewhat slender Stalks, with Leaves like those of Fennel, and yellow Flowers, larger than those of the *Anthemis*, and resembling an Eye, whence it took its Name. It grows in Fields, and about Cities and Towns.

The

The bruised Flowers with Cerate discufs œdematous Tumors and Hardnesses. They say, that *Bupthalmum*, drank after coming out of the Bath, restores, after some time using it, a good Complexion to those who are discolour'd with the yellow Jaundice. *Dioscorides, Lib. 3. Cap. 156.*

Ox-eye is a Plant which has a great many shrubby Branches, whereon grow fine winged Leaves, like Yarrow, but shorter, stiffer, and somewhat white and hoary: Each Stalk is terminated by one pretty large corymbiferous Flower, of a deep yellow Colour like a Marigold, but that the middle Thrum is larger in proportion, and the Petals are much shorter and firmer. The Root is small and fibrous. It grows wild in some Parts of the North of England, and flowers in June or July. It is seldom or never used: But that which is called the Ox-eye in the Shops, is the *Bellis major*. *Miller's Bot. Off.*

There is another Sort of *Bupthalmum* thus distinguish'd.
BUPHTHALMUM GERMANICUM, Offic. *Bupthalmum vulgare*, Raii Hist. 1. 341. Synop. 3. 18. Ger. Emac. 747. *Bupthalmum tanacetii minoris folio*, C. B. Pin. 134. Chomel. 2. 692. Boerh. Ind. A. 106. Tourn. Inst. 49. Elem. Bot. 396. Rupp. Flor. Jen. 136. Dill. Cat. Gilli. 159. Buxb. 47. *Bupthalmum Matthioli five vulgare, millefolii foliis*, Park. Theat. 1370. *Chamæmelum Chrysanthemum quorundam*, J. B. 3. 122. *Chamæmelum Chrysanthemum quorundam: Bupthalmum multis*, Chab. 363. *Chrysanthemum perenne, brevioribus & incanis foliis tanacetii instar alatis*, Hist. Oxon. 3. 20. COMMON OX-EYE.

This Herb is said to be aperitive, vulnerary, and to be good for a Jaundice; but it is seldom met with in our Shops.

Miller takes Notice of five Species of this Plant.

BUPLEUROIDES, βupleuroidης, from βύπλευρον, Bupleuron, and εἶδος, a Form or Shape, that is, a Plant much of the Figure of the *Bupleuron*. It is thus described.

The Leaves grow together by Twos and Threes in the same Place. The End of the Foot-stalk bears an oblong Ovary, the Apex of which is crown'd with a naked, herbaceous, pentapetalous Flower, the Petals being rolled up, inclosing five Stamina. The Ovary has a Tube cleft in two, the Apices of which are backwards, and rough. When ripe, it passes into two longish Seeds; the Flowers are disposed in the Form of an Umbel or Umbrella. It is an Evergreen. *Miller's Dict.*

I find no Medicinal Virtues ascrib'd to it.

BUPLEURON, βύπλευρον, from βύς, an Ox, and πλευρῶν, a Side, because it is said to cause a Crepitation of the Side of an Ox, but more probably, because it affords the Ox a Red: Or it may be supposed to be so called, because the Leaves bear some Resemblance to the Ribs of an Ox; or of βύς, great, and πλευρῶν, Side, as the large Rib. *Miller's Dict.*

The Plant usually understood by this Name is thus distinguished.

BUPLEURUM, Offic. Ind. Med. 23. *Bupleurum folio subrotundo, five vulgatissimum*, C. B. Pin. 278. Rupp. Flor. Jen. 226. Raii Hist. 1. 473. Tourn. Inst. 309. *Bupleurum angustifolium herbariorum*, Elem. Bot. 259. *Bupleurum angustifolium*, Buxb. 47. *Bupleurum perenne angustifolium*, Mor. Umb. 26. *Bupleurum perenne, longis & angustis foliis incurvis*, Hist. Oxon. 3. 300. *Auricula leporis umbella lutea*, J. B. 3. 200. Chab. 409. HARES-EAR.

It grows in hilly Places; flowers in July and August. The Herb is in Use. It is accounted a good Drier, Aperitive, and Discutient; it expels Urine and Sweat, and mundifies Wounds. *Zwing. Theat. Dale.*

Its under Leaves are sometimes oval, and much larger than the others: Both they and the Root are well drawn in *Tragus's* Figure. This Plant is very well described in *Cordus*, who calls it *Hysophyllum*, and makes use of *Tragus's* Figure. The Figures of other Authors represent only the Leaves which accompany the Stalk of this *Bupleurum*, and resemble those of Dogs-grass: Which is the Reason, that they very well express another Plant also of the same Family, which grows in *Provence* and *Languedoc*, but is annual. *M. Magnol* has named it *Bupleuron annuum angustifolium Bot. Monsp.* He observes, that it is the *Auricula Leporis Monspeliensis*, *Plantaginis minoris folio*. *Gesn. Dodonæus's* Figure represents it not amiss.

C. Bauhine has confounded *Gesner's* Plant with that of which we are speaking. *Martyn's Tournefort.*

BUPRESTIS, Offic. Aldrov. de Insect. 487. *Jonf. de Insect. 78. Mouff. Insect. 141. Charlt. Exer. 48. THE BURN-COW. Dale.*

The Buprestes, which are a kind of Cantharides, are cured for Use like Cantharides, and so are the *Eruca* of Pine-trees. But these last must be roasted a little while in a Sieve hung over hot Ashes, before they are repositied.

They are all, in common, of a septic, exulcerating, and heating Quality; for which Reason they are mix'd up with Medicines adapted to the Cure of a Carcinoma, Lepra, and malignant Lichen. Mix'd in emollient Pessaries, they provoke the Menses. Some affirm, that Cantharides mix'd with Antidotes help the Dropsy, because they provoke Urine; and

others have written, that their Wings and Legs taken internally are an Antidote. *Dioscorides, Lib. 2. Cap. 66.*

Buprestis, βύπρεστις, is deriv'd from the intensive Particle βύς, and πρεστις, a Burner, from πρήω, to burn, because it is an Insect of a very inflammatory Quality; or, as some will have it, from βύς, an Ox, and the aforesaid Word; for if an Ox, they say, swallow this Insect, he dies of an Inflammation and Tumor of the Abdomen. *Castellus. Blancard.*

Pliny, Lib. 30. Cap. 4. says, "It is rarely found in Italy, and is like a long-legged Beetle, and is most pernicious to Black Cattle, who devour it among the Grass, whence it takes its Name; for it so affects their Gall, as to cause an Inflammation and Rupture of the Bladder." And the same Author, *Lib. 22. Cap. 22.* says, "that the Greeks by a strange Inconsistency commend it in Food, and prescribe Remedies against it as a Poison, which its very Name shews it to be at least to Black Cattle, which, they confess, will burst upon eating of it." *Vegetius, Artis Veterinariæ Lib. 3. Cap. 78.* says, "That if a Horse chance to eat a *Buprestis* in his Hay, or at Grass, his Belly becomes inflated, he starts back from his Fodder, he dungs little and often, in which Case you must immediately saddle him, and put him upon a Courser."

Βύπρεστις in *Galen's* Exegesis is expounded, τό τε ζῶον τὸ τῇ καθαρίδι παραπλήσιον, ἔστι δὲ καὶ τι λαχάρων ἄγριον, ἢ μεμνῆσαι Διοσκορίδης ἐν τῷ πρώτῳ τῶν ὑγίειων, καὶ ἐν τῷ περὶ λαχάρων. "The *Buprestis* is an Animal much like Cantharides, and also a wild Green, mention'd by *Dioscorides*, in his Book of wholsome Things, and in his Book of Greens." The *Buprestis*, Animal, is often used by *Hippocrates, Lib. 1. περὶ γυναικ.* and *Lib. περὶ γυναικ. εὔσ.* in Pessaries, for a Strangulation of the Uterus, and to provoke the Menses. *Theophrastus* mentions the *Buprestis* among Greens. *Hist. Plant. Lib. 7. Cap. 8.*

The *Buprestis*, βύπρεστις, is a kind of little Animal like the Cantharis, which if an Ox happens to eat, he immediately swells and dies; and from this Effect it takes its Name. Βύπρεστις is also a kind of Green. *Hesychius, Βύπρεστις λαχάρων εἶδος*, "The *Buprestis*, &c." This Green took that Name not from causing Inflations in Black Cattle, but because it was a large Sort of *Prestis*, a Green so called, for what Reason I know not. So βυλάπαθον (*Bulapathum*) is a great *Lapathum*; and βυσέλινον (*Buselinum*) is a large Sort of *Apium*; and βύσυκα (*Busyca*) large Figs. *Pliny* did not imagine, that *Buprestis* was a common Name for two different Things; and therefore says, *Lib. 22. Cap. 22. Buprestim magna inconstantia Græci in laudibus ciborum etiam habuere, iidemque remedia tanquam contra venenum prodiderunt. Et ipsum nomen indicio est boum certe venenum esse, quos dissilire degustata fatentur.* "The Greeks with great Inconsistency, &c." (See before).

Here the want of Consideration in *Pliny* is much to be admir'd for blaming the Inconsistency of the Greeks with respect to the *Buprestis*; for the *Buprestis*, which is Poison to Black Cattle, is quite another thing from the *Buprestis*, which the Greeks commend in Food: This is a Green, that a poisonous Animal. When they therefore prescribe Remedies against the *Buprestis*, it is against the Animal; when they commend it in Food, they mean the Herb or Green of that Name; so that there is the same Name, but not the same thing, nor perhaps the same Etymology of that Name. But the Greeks very clearly distinguish the *Buprestis* by the Words following, βύπρεστις τό τε ζῶον, &c. (See before). But *Pliny* confounds together not only Things which are really homonymous, but sometimes such as have some Similitude of Names, or where they differ only in Accent. Thus he makes ἀδίαστρον (*Adiantum*) a Topiarian Plant, when he intended ἀκάρθα (or *Acanthum*); and the Herb ἐξέιν to be the same with the ἐξέιν of *Theophrastus*, with an infinite Number of other such Mistakes. *Salmasii Prolegom. in Homonym. Hyl. Iatr. p. 3.*

It seems to belong to the kind of Cantharides, but it is more oblong in Body; and the crustaceous Integument of its Wings appears outwardly of a green, inclining to yellow, or rather is of a Gold-colour; it has also longer Legs, and somewhat thicker. The Eyes are globous and prominent, and from the Forehead, near the Eyes, proceed two oblong articulated Horns. The Head is but small, but the Mouth wide, hard, strong, forcipated, and armed with Teeth, with which it wounds and bites cruelly; the Belly is not round, but runs out in Length. *Dale.*

BUR. A Term in *Helmont*, the Meaning of which may be best known by giving the entire Passage in which it occurs, which runs thus. "Water putrefying (*frascens*) in the Earth acquires either a local or a native (*insitum*) Seed; for which Reason it either passes into a Liquor, which I call *Laffas*, for the furnishing of all Plants, or into a mineral Juice called *Bur*, according to the Species chosen by the Direction of the Seeds." *Elementa, 13.*

BURAC. All kinds of Salts; but some distinguish them into *Baurac*, *Denequat*, *Borago*, *Borax*, *Uritar*, and *Angar. Rulandus.*

BURDO, *Burdus*. A Colt, or young Mule, the Liver and Testicles of which last are recommended by *Aldrovandus*, *de Quad. L. 1. C. 4.* for their Medicinal Virtues. *Castellus*.

BURDUNCULUS. The Name of an Herb in *Marcellus Empiricus*, otherwise, as he says, called *Lingua Bovis*.

BURINA. Pitch. *Rulandus*.

BURIS. A Name given by *Avicenna* to a scirrhus Hernia, caused by the Lapidosity of a hard Abscess. *Castellus*.

BURNEA. Pitch. *Johnson*. I suppose he means BURINA.

BURRII SPIRITUS MATRICALIS, or *Burrius* Spirit for Disorders of the Matrix, is thus prepar'd:

Take of Mastic, Myrrh, Olibanum, and Amber, each two Ounces: Bruise them together, and add twenty-four Ounces of rectify'd Spirit of Wine: Digest for four Days, and afterwards distil to three Fourth-parts. *Pharmacop. Leydens.*

Boerhaave us'd this much in his Prescriptions.

BURSA PASTORIS, Offic. Ger. 214. Emac. 276. Mer. Pin. 17. *Bursa pastoris major vulgaris*, Park. Theat. 866. *Bursa pastoris major*, Merc. Bot. 1. 24. Phyt. Brit. 18. *Bursa pastoris major, folio sinuato*, C. B. Pin. 108. Rupp. Flor. Jen. 68. Tourn. Inst. 216. Elem. Bot. 185. Boerh. Ind. A. 2. 9. Buxb. 48. *Bursa pastoris major, capsula cordata, foliis lacinia-tis*, Hist. Oxon. 2. 304. *Bursa pastoria*, J. B. 2. 936. Chab. 295. Raii Synop. 3. 306. Dill. Cat. Giff. 45. *Thlapsi fatuum*, *Bursa pastoris dictum*, Raii Hist. 1. 838. Synop. 2. 176. SHEPHERD'S-PURSE. *Dale*.

The lower Leaves of *Shepherd's-purse* lie flat on the Ground, in a round Compass, three or four Inches long; narrow, and cut into several Gashes, a little hairy. The Stalk is slender, about a Foot high, branch'd towards the Top, beset with a few whole Leaves, which are sharp-pointed, and set close on, without Foot-stalks. The Flowers are small, white, and four-leav'd, and are succeeded by three square Seed-vessels, in Shape of a Purse, containing very small reddish Seed. The Root is whitish, woody, and full of Fibres, of but little Taste. It grows every-where among Rubbish, Banks and Walls, and flowers all the Summer. *Miller's Bot. Off.*

It is of an herby Taste, a little saltish, and deterfive. The Juice of its Leaves gives a faint-red Colour to blue Paper, which gives us Reason to imagine, that, in this Plant, the Sal Ammoniac, which is natural in the Salt of the Earth, predominates over the other Principles; this Sal Ammoniac is dissolv'd in a considerable Quantity of Phlegm, and is temper'd by a good deal of Earth, and a little Sulphur.

This Plant does not yield much Acid, by a Chymical Analysis; almost all that is extracted from it is Alcaline.

There are but few Plants which yield more concrete volatile Salt, fix'd lixivial Salt, and Earth. These Principles, mix'd together, render the *Shepherd's-purse* proper to dissolve the Blood, when it is thicken'd by foreign Acids, which hinder it from passing, with its ordinary Velocity, from the Arteries into the Veins; to which we may refer the greatest Part of Defluxions. Besides, the Earth, which is in this Plant, easily imbibes the Serofities, which occasion a Relaxation of the Fibres; thus, by the Consent of all Authors, it is vulnerary and astringent; it is also believ'd to be febrifugous and lenitive. The Juice of its Leaves drank, from four Ounces to six, is an excellent Remedy in all Losses of Blood, and in Defluxions attended with an Inflammation. They boil a Handful of it in lean Broth, and employ it in Ptilans, Glysters, and Cataplasms. Its distil'd Water has little or no Virtue; it is nothing but the Phlegm separated from the other Principles.

It is found almost all the Year; for it propagates itself by Seed towards the End of the Summer. *Martyn's Tournefort*.

Those People are mistaken, who imagine that the styptic and astringent Qualities of the *Shepherd's-purse* are owing to its Coldness; for, like *Alcohol* of Wine, it acts by a hot and acrid Quality, either strengthening and constricting the Vessels, by burning them, or coagulating the Juices by its Heat; when it is either bruise'd, and apply'd to Wounds in the Surface of the Body, or when, in Hæmorrhages of the Nose, its expressed Juice is drawn up the Nostrils, or a Tent dip'd in it put up, and retain'd in them. In discussing Cataplasms, and febrifuge Preparations, to be apply'd to the Wrists, the *Shepherd's-purse* is used in the same Manner, and with the same Intention, that other hot and stimulating Medicines are. When *Borelli*, Cent. 3. Obj. 27. affirms that the Bulk of a common Nut of bruise'd *Shepherd's-purse*, put into the Ears, is an excellent Medicine for removing the Tooth-ach, I should think, that this Effect was not to be ascrib'd to the Coldness, but rather to the Heat of the Plant, which stimulates the Nerves, and dissipates the Cause of the Disorder. But whether, when apply'd to the Nape of the Neck, or to both Arm-pits, or press'd pretty hard in the Patient's Hand till it becomes warm, or put under the Tongue, it stops Hæmorrhages of the Nose, and Points which can only be determin'd by Experience. The learned *Pauli* tells us he knew a Man cur'd of a Spitting of Blood by

means of this Plant, which, during the Paroxysm, he used to grasp hard, and afterwards putting it between the Soles of his Feet and his Stockings, he walk'd upon it. But 'tis to be observ'd, that, at the same time, the Patient receiv'd the Fume of the best native Sulphur into his Mouth and Throat. *Shepherd's-purse*, applied to the Soles of the Feet, is said to be an approv'd Remedy for Head-achs. According to *Etmuller*, its Juice, put into Ears from which purulent Discharges are made, heals them; and, when mix'd with Vinegar and Housleek, it allays Inflammations of all kinds, the Gout arising from a hot Cause, inflammatory Tumors of the *Pudenda*, and Erysipelas. Four or six Ounces of its express'd Juice are recommended as a Medicine to be taken internally in Spittings of Blood, immoderate Fluxes of the Menfes, Discharges of bloody Urine, Diarrheas, Dysenteries, Lienteries, and Gonorrheas. Decoctions of it are also us'd, made with Red-wine, or common Water in which red-hot Steel has been extinguish'd; as also with lean Flesh-broth. Clysters of the above Decoctions are also said to contribute to the Cure of Fluxes. In Gonorrheas *Etmuller* recommends one Ounce of the expressed Juice, or two Ounces of the Decoction of *Shepherd's-purse*, to be drank, with three or four Grains of Camphire. The *Aqua burse pastoris styptica*, so much extol'd in Fluxes, and Hæmorrhages of the Uterus, Mouth, and Nostrils, as also for cleansing Ulcers, and allaying Heat, is, by *le Mort*, L. 2. 37. prepar'd thus:

Take of the Herb *Shepherd's-purse*, as much as you will; cut it small, and to each Pound of it add of crude Alum, and Vitriol of Mars, each half an Ounce; and of Water, a sufficient Quantity. Infuse for ten or twelve Days, and then distil in the common Manner.

The *Bursa pastoris major, folio non sinuato*, agrees with the former in its Medicinal Virtues.

BURSA TESTIUM. The Purse or Bag of the Testes. See SCROTUM.

BURSALIS MUSCULUS, *μὲν βурсовиднѣ*. The purse-like Muscle, a Name given to the *Musculus obturator internus femoris*. *Castellus*. See MARSUPIALIS.

BUSELINUM, *βασελινον*. The common *Daucus* so call'd, the Word importing a large kind of *Apium*. *Blancard*.

BUSSII SPIRITUS BEZOARTICUS. Bezoartic Spirit of *Buffus*.

This Spirit takes its Name from its Inventor, *Buffus*, an eminent Physician of *Dresden*; and the Medicine itself is of universal Use in *Saxony*, and well deserves our Notice; for it is a powerful Sudorific and Diuretic, with due Management; and is an excellent Antispasmodic, especially when mix'd with our anodyne Liquor (See *VITÆ BALSAMUM*). Besides, it recommends itself on account of its grateful Flavour, having nothing of a nauseous empyreumatic Smell.

The Foundation of the Preparation consists in mixing the volatile, urinous, and oily Spirits of Animals with highly rectify'd Spirits of Wine, and, with an Addition of balsamic Species, distilling them over a proper Fire; by which means we obtain a Spirit well impregnated with a volatile Salt, an empyreumatic Oil, and resinous, sulphureous, balsamic Particles, and of no unpleasant Smell and Taste. Tho' there are many different Preparations of this Spirit, our way of making it is as follows:

We take of Spirit of Ivory, saturated with a subtil Oil, and volatile Salt, about two Ounces; Sal Ammoniac, four Ounces; Pot-ash, first dissolv'd in Water, eleven Ounces; Amber, finely pulveriz'd, half a Pound; genuine Oil of Cedar, or of Juniper, half an Ounce: All these Ingredients, being exquisitely mix'd in a Glas Cucurbit, are to be distil'd in a Sand-heat, by which we extract a Spirit, endu'd with the aforesaid Virtues. A volatile Salt first rises in the Alembic, which is afterwards successively dissolv'd by the Spirit.

It is here to be observ'd, that the *Peruvian* Balsam, or the fresh Peel of Lemons or Oranges, or Juniper-berries, or any other balsamic and aromatic Powders, may be us'd instead of the Ingredients before-mention'd.

In the Process, a limpid Spirit, like Water, comes over; but the longer it is kept in a Vessel exposed to the Air, the more yellow it turns, till its Colour be heighten'd almost to a Redness. If the Glas be filled with this Spirit, and covered with the Stopple, it will continue clear, and suffer no Alteration of Colour; whence we are plainly taught, that the Cause of this Change is in the Air. And I am of Opinion, that the original, and most simple, Acid of the Air, which is of wonderful Virtue in exalting the Colour of Sulphur and Oil, concurs in this Alteration.

This Spirit abounds with an oily volatile Salt; for the more a volatile Salt is impregnated and intimately mix'd with an Oil, the more easily and readily it unites with highly rectify'd Spirit of Wine; and that Salt may immediately be precipitated from

from this Spirit, by mixing a few Drops of Oil of Vitriol with it, which produce a Coagulation and Precipitation of the Salt to the Bottom, where it firmly adheres to the Sides of the Glass. It is worthy our Observation, that this volatile Spirit of *Buffius* is endu'd with an almost incredible Virtue, in subverting and expelling all kinds of Acids, tho' never so strong; and these Effects are attended with different Circumstances and Events. Thus, if one Part of Spirit of Nitre, or Aqua-fortis, be pour'd to three Parts of this Spirit, all the Acidity is soon taken off, without any remarkable Ebullition, and nothing is precipitated to the Bottom; the Mixture acquires a mild nitrous Taste, and, being put into a Silver Spoon, and evaporated by the Heat of a Candle, leaves a Salt of an exquisitely nitrous Flavour. This Mixture also, on account of the volatile Nitre which it contains, is endu'd with excellent Medicinal Virtues; for, in acute Distempers, where volatile Medicines are of no Effect, because of the violent Motion and Effervescence of the Blood, this Spirit, mix'd with Spirit of Nitre, and render'd more temperate, gives all the Relief that can be wish'd, by gently carrying off the morbid Matter.

If this Spirit of *Buffius* be mix'd with Spirit of Salt strongly concentrated, there arises a greater Ebullition than in the former Case; but all the Acid is, in like manner, in a very short time, subdu'd, and the Liquor turns salt, which, in Disorders of the Stomach, where the Appetite is lost, may be given with Success, for dissolving viscid Crudities. When this Spirit is mix'd with distil'd Oil of Vitriol, there immediately arises an Effervescence, the Mixture becomes turbid, and all the volatile Salt is precipitated to the Bottom; the Taste of the Mixture has nothing of Acidity, but has a grateful Smell.

The Reason why there is a Concretion and Precipitation of the volatile Salt at the Mixture of concentrated Oil of Vitriol, but not with other Acids, seems to be as follows.

Oil of Vitriol, as being a very strong Acid, unites with inflammable Spirit of Wine, which is an oily Substance; hence the volatile Salt, which it contains, is precipitated; but, from other acid Spirits, which are weaker, and incapable of so intimate a Combination with the inflammable Spirit of Wine, there follows no Precipitation.

From these Experiments we may draw this Conclusion, which is very useful in Practice: That this Spirit, which abounds with an oily volatile Salt, may be given in large Doses, without Inconvenience, in Distempers, especially chronical ones, where a strong and copious Acid is lodg'd in the Sinuses of the Stomach and Intestines, and creates Disturbances in those Parts, as it does more remarkably in Hypochondriacal Affections. *Fred. Hoffman, Observ. Physico-chy.*

BUST A. Boil'd with Poison. *Rulandus.*

BUTEO, Offic. *Jonst. de Avib. 11. Charlt. Exer. 72. Gesn. de Avib. 39. Raii Ornith. 70. Buteo vulgaris, Will. Ornith. 29. Buteo five triorchis, Aldrov. Ornith. 1. 363. Bellon. des Oyse. 109. Mer. Pin. 171. Buteo vulgaris five triorchis, Raii Synop. A. 16. Accipiter, Buteo, Schw. A. 187. THE BUZZARD. Dale.*

The Testicles of this Animal are only us'd for Medicinal Purposes.

A Decoction of them, with Spring-water and Honey, is said to prove a Stimulus to Veneries. *Dale from Johnst.*

BUTIGA. An Inflation of the whole Face; call'd also *Gutta ruonia*, or *rubea*. *Rulandus.*

BUTLER, an *Irishman*, the Inventor of a Stone of wonderful Efficacy in the Cure of very dangerous Diseases, in a very speedy Manner; he is also said to have been excellent at making Gold out of Lead and Quicksilver. However, it is certain, that he was in great Esteem with our King *James I.* and *Van Helmont* did him the Honour to intitle one of his Tracts BUTLER, in which he relates several strange Cures perform'd, in all Appearance, by means of his Stone; particularly, that when Butler was a Prisoner in the Castle of *Vilvorden* in *Brabant*, he took Notice, one Evening, of one *Bailly*, a *Franciscan* Monk, and a very celebrated Preacher of *Bretagne* in *France*, who was his fellow-prisoner, and had his Arm affected with a terrible Erysipelas; and, taking Pity of the Man, he took a small Stone, and hastily dip'd it in a Spoonful of Almond-milk, immediately taking it out again; then said to the Keeper, "Give this to that Monk, and, whether he takes more or less of it, within the Space of one Hour, at farthest, he shall be a sound Man." This actually came to pass, to the Astonishment of the Keeper, the Sick not knowing by what means he came to be so suddenly restor'd to his Health, or that he had taken any thing for that Purpose; but his Left Arm, which was swell'd to an immense Degree, immediately fell to such a Pitch as scarce to be distinguish'd from the other. The next Day, says *Helmont*, I came to *Vilvorden*, at the Request of some Persons of Quality, that I might be a Witness of these Actions, where I contracted a Friendship with *Butler*; and, soon after, observ'd an old Washer-woman, who, for about sixteen Years, had labour'd under an intolerable Hemisrania, cur'd in an Instant, while I was present. For he took the same

Stone, and carelessly dipp'd it in a Spoonful of Oil of Olives; then taking it out immediately, lick'd it dry, and put it into his Breast-pocket; the Spoonful of Oil he pour'd into a little Flaggon of the same Liquor, and then order'd only one Drop of it to be put upon the Head of the old Woman, who recover'd her Health that Moment, and has remain'd well from that Time, which is some Years ago. I could not help being vastly surpris'd; but he look'd at me with a smiling Countenance, and said, "My dear Friend, unless you can arrive to such a Degree as to be able to cure all Diseases with only one Remedy, you are still but a Novice in the Art, how many Years soever may have pass'd over your Head." I easily acquiesced in what he said, because I had learn'd as much from the *Arcana* of *Paracelsus*, and was further convinc'd of it by what I now saw, and expected to see; but this new Method of Curing, I freely confess'd, was utterly strange and unknown to me. I told him then, that there was a young Prince in our Court, *Viscount Ghent* by Title, and Brother to the Prince of *Epifnoy*, who was so over-run with the Gout, that he was able to lie only on one Side, and was quite miserable, and deform'd with a Multitude of nodous Swellings. Says he, taking me by the Right Hand, "Are you willing that I should cure this young Prince? I will cure him for your sake." "But, said I, he is so stubborn, that he will rather die than take one Dose of Physic." "No matter, answer'd *Butler*; all I require of him is, only every Morning to touch this little Stone, which you see, with the Tip of his Tongue; for, after three Weeks from that Time, let him but wash the painful, and the not-painful Nodes with his own Urine, and, in a very short time, you shall see him upon his Feet, and a sound Man. Go, and tell him with Joy what I say." So I returned to *Brussels* with these glad Tidings, and told what *Butler* had said. The Nobleman answer'd, "Go tell *Butler*, that if he makes me sound, he shall have whatever he will ask; let him but name his Price, and I will freely deposit the same in Pledge for his Security." When I return'd to *Butler* the next Day with this News, it put him in a great Heat, and he said, "Your Prince is mad and miserable, for which Reason I shall never do him any Good; for I do not want his Money, but am as good as himself." Nor could I ever afterwards prevail with him to perform what he had promis'd. Wherefore I began to doubt whether what I had seen before ought not to be regarded as Things pass'd in a Dream. But it happen'd, some time after, that a Friend of *Butler's*, who was Master and Overseer of a Glass-house in *Antwerp*, and of a very gross Habit of Body, earnestly begg'd of *Butler* to be freed from the Burden of his Fat. *Butler* offer'd him a little Bit of his Stone to lick once, that is, to give it one quick Touch with the Tip of his Tongue every Morning; and, within three Weeks, I saw him shrunk a full Span at the Breast, and yet never the worse in Health. This Event inclin'd me to believe, that he could have made good his Promise, and perform'd a Cure upon the gouty Person before spoken of. But, in the mean time, finding myself poison'd by some secret Enemy, I sent to *Butler*, at *Vilvorden*, for a Remedy. I was in a very languishing Condition, pained in all my Joints, my Pulse beat double, (*dicrotus*) and, at last, was intermittent, attended with a Lipothymy, and an utter Decay of Strength. *Butler*, who was still a Prisoner, immediately order'd the Messenger, my Servant, to bring him a little Pot of Oil of Olives, and, dipping his Stone therein, as usual, sent the Oil to me, with Directions to put only one Drop of Oil upon one, at least, of the pained Parts, or one Drop upon each of them, if I pleas'd. I did according to his Orders, but receiv'd no Benefit thereby. In the mean time, my Enemy, being taken sick, and upon his Death-bed, sent to ask my Pardon for the Injury he had done me, and so confirm'd my Suspicion, that I was poison'd. I had then no more to do but to use the best means I could to put a Stop to the Operations of this slow-working Poison, and wholly to subdue it; and, by the Grace of God, I escap'd. But my Wife, for some Months, had been afflicted with a Pain in her Right Arm, so that she could not so much as lift her Hand, much less lift up a Weight, and, with Sorrow and Concern on my Account, contracted at last a dangerous oedematous Tumour in both her Legs, which, by Degrees, extended itself from the Foot as high as the Groin, as appear'd from the Pits left by the Impression of the Fingers; and, because her Distemper was owing to Grief and Concern for my Troubles, she would take no Physic while her Sorrow lasted. In this Condition, my Wife finding that *Butler's* Oil had no Effect upon me, and being willing to pass a Joke upon my Credulity before some Ladies, put only one Drop of this Oil upon her Right Arm; the immediate Consequence of which was, contrary to all Hope, the Restoration of that Arm to its free Motion, and former Soundness. We were all struck with Wonder at so sudden and miraculous an Event, and she was encourag'd to anoint her Ankle-bones with the same Oil, on each of which she put only one Drop, drawing it round the Eminence of the Bone, and, within a Quarter of an Hour,

the Œdema quite vanish'd, and she is still living in good Health, tho' nineteen Years are past since this extraordinary Event.

Van Helmont proceeds to relate two more such prodigious Cures; one perform'd on a Maid-servant of his, who, from an Erysipelas, which had thrice afflicted her, and been as often ill cur'd, had her Right Leg of a leaden Colour, and swell'd from the Knee to the Toes; the other was on a Widow Gentlewoman, who, for some Months, had not been able to lift her Hand.

After this, says *Helmont*, I ask'd *Butler* why so many Women could be suddenly cur'd, and I, who lay even at Death's Door, oppress'd with Pains in every Limb and Joint, could not receive the least Relief. He desir'd to know what was my Distemper, and, when he understood, that it was the Effect of Poison, he said, "That, since the Cause had betaken itself from the inward to the outward Parts, the Oil should have been taken, or the Stone dip'd; that Pain, internally confin'd and nourish'd, could not be topical or external." I observ'd also, says *Helmont*, that this Oil, by Degrees, lost its Efficacy, because the Stone, which was slightly dip'd therein, did not make a thorough Alteration in its Substance, but only imparted to it a Fragrancy, which in time went off. For this Stone, to the Sight, and on the Tongue, was like melted Sea-salt; and it is well known, that Salt cannot be intimately mix'd with Oil. *Butler* also cur'd an Abbess of sufficient Note, who, for eighteen Years, had her Right Arm swell'd, with a deprav'd Motion, with the Fingers extended and immoveable; and this only with a Touch of the Tongue upon the Stone. Multitudes of those who were Witnesses of these strange Events, presently suspected there must be some Witchcraft, or diabolical Compact, in the Case; for it is usual with the Vulgar, and has been so of old, to refer those Events, in which they think it shameful to confess their Ignorance, to the cunning Wiles of evil Spirits. But I am not inclin'd to their Opinion, because the Remedies are supposed to be natural, and have nothing unusual besides the Quantity; for no Ceremonies, Words, nor any other suspected Thing, was requir'd. Nor, indeed, is it lawful, as far as human Understanding can perceive, to transfer the Glory of God, manifested in Nature, to an evil Spirit. For none of the Women, who were thus cur'd, ever consulted *Butler*, as one in the least suspected of Necromancy; and even his first Essays met with Laughter, instead of Faith and Confidence. However, the Facility and Celerity of such a way of Curing will, I know, remain suspected by many; for the fickle and lazy Disposition of the Vulgar, in arduous and unusual Events, prompts them to judge of all alike, because it is the easiest Way; and they had rather ascribe the Benefit of so great Cures to diabolical Deceit, than to the Divine Goodness, to the Author, Lover, Saviour, and Restorer of human Nature, and the Father of the Poor. And, in this vain and weak Opinion, they are follow'd by those among the Learned, who take a wrong Method of investigating the first Principles of curing Diseases, who are not yet instructed, or observe the common foolish Rules. *Helmont*.

These Relations, strange as they are, Mr. *Boyle* seems not to disbelieve. He tells us, That a Gentleman in *France* was reported to have some Portion of this Stone, and to have cured several inveterate Diseases, by suffering the Patients to lick it; and Sir *Kenelm Digby*, upon Inquiry when in *France*, found no Reason to disbelieve these Reports. He farther says, That *Helmont's* Widow, many Years after her Husband's Decease, confirm'd to a Friend of his the Story told above relating to herself. These Particulars, adds he, receive Confirmation from two remarkable Circumstances; for, first, *Helmont* is the more to be credited here, because he mentions Cures not perform'd by himself, but by a second Person, and that too with Remedies unknown to him. Secondly, our famous Countryman Dr. *Higgins*, who lived familiarly in the same House with *Butler*, gives a strange Attestation to his Secrets.

BUTOMUS, Offic. Mont. Ind. 65. Cæs. 553. Raii Synop. 3. 273. Elem. Bot. 235. *Butomus flore roseo*, Tourn. Inst. 271. Boerh. Ind. A. 299. Buxb. 49. Rupp. Flor. Jen. 124. Dill. Cat. Giss. 97. *Juncus floridus*, J. B. 2. 524. Park. Theat. 1197. Raii Hist. 1. 701. *Juncus floridus paludosus*, Chab. 198. *Gladiolus palustris Cordi*, WATER GLADIOL, Ger. 27. Emac. 29. Mer. Pin. 46. *Gladiolus aquaticus sive palustris Cordi*, Merc. Bot. 1. 38. Phyt. Brit. 47. *Sedo affinis juncoides umbellata palustris*, Hist. Oxon. 3. 468. WATER GLADIOLA.

It has two Roots; the more slender and black of which descends, whilst the thicker spreads itself transversely almost at the Surface of the Earth, with some Shoots, and many Fibres, adhering to it. The Roots have a sweetish Taste, and are glutinous in the Mouth. The thicker Root is, in my Opinion, the last formed Part of the Root, and of one Year's Growth only. As this Root grows, it sends out Leaves above, and thrusts large white Fibres downwards. It raises many soft Leaves with a spongy or porous Medulla; and these Leaves are triangular, long, concave at their Origins, and embracing some

Part of the Stalk with membranous Appendices; but they are more flat towards their Points. The Stalk is two Cubits and more in Length. It is round, smooth, and spongy, but not concave; bare of Leaves; and on its Top bears several Flowers disposed in the Form of an Umbel, and supported by slender naked Pedicles, about half a Handbreadth in Length. The Flowers are hexapetalous, and of a carnation Colour, somewhat inclining to Purple. The three exterior Petals are carinated and largest, and seem to belong to the Calyx; but the three interior ones are less. The small seminal Vessel consists of six purple-coloured Capsulas, corniculated at the Top, and containing within them very small Seed. About nine Stamina surround this Seed-vessel in the Middle of the Flower. These Stamina are furnished sometimes with long purple Apices, and sometimes with shorter. They stain the Fingers of those who handle them with a yellowish Kind of Powder. Three remarkable acute small Leaves stand round the Basis of the Umbel.

According to *Cordus*, it grows in fat, slimy, and moist Places, which are overflow'd by Rivers. With us it is, for the most part, found in the Channels of Rivers among the Mud near the Edges. *Raii Hist. Plant.*

It flowers in *June*, and the Herb is only in Use.

It is of an aperient and deobstruent Quality. *Dale*, from *Josephus Monti*.

BUTYRUM, βύτυρον, or βέτυρον, Butter, from βῆρ, an Ox, or Cow; and τυρός, Coagulation of Milk, or Cheese.

Good Butter is made of the fattest Milk, such as that of Sheep; it is also made of Goat's-milk, by stirring it in a Vessel, till the pinguious Part be separated.

It is of a mollifying Nature, and has the Qualities of Oil; hence taken in large Quantities it loosens the Belly, and is used as an Antidote against Poison, where Oil cannot be had. Mixed with Honey for a Litus it promotes Breeding of Teeth, and cures Itching of the Gums, and the Aphthæ of Infants. Outwardly used it renders the Body smooth and florid, and free from Pityriasis [*little pustulous Eminences*]. Provided it be neither old, nor contract a rank Smell, it is effectual also in Inflammations and Hardnesses of the Uterus. It is also administer'd in Clysters for a Dysentery, and Ulcerations of the Colon. It is an useful Ingredient in suppuratory Medicines, and especially in Wounds of the Nerves, Meninx, Bladder, and Neck. Moreover it fills, cleanses, and incarns; and is apply'd with Success to the Bite of an Asp. While recent, it serves with Meats instead of Oil, and for Pastry instead of Fat.

They collect the Soot from Butter in the following manner:

They pour Butter into a new Lamp, and setting it on Fire, cover it with an earthen Vessel, made like a Tube, which is narrow in its upper Part, and perforated at the Bottom with Holes like an Oven [κλίβανος]; there they let it burn; and as soon as it is consumed pour more Butter, and continue so to do, till they have obtained as much Soot as they please; after which they take it off with a Feather, and apply it to a proper Use.

It is a serviceable Ingredient in Medicines for the Eyes, being of a drying and astringent Quality. It stops Defluxions, and brings Ulcers speedily to cicatrize. *Dioscorides*, Lib. 2. Cap. 81.

Hippocrates, in his fourth Book *de Morbis*, informs us, that the *Scythians* make Butter of Mares Milk.

There are as many Sorts of Butter, as there are different Milks of Animals whereof to make it; that of the Cow is most in Use. You are to make Choice of that which is fresh, of a good and pleasant Taste, such as has been well made; but *May* Butter is esteem'd the best.

Butter is nourishing and pectoral; it opens the Body, allays the Sharpness of corrosive Poisons; is of a dissolving and digesting Nature, and good to ease Pains, and remove Inflammations. It is used in Clysters against bloody Stools, and the Dysentery. They rub the Gums of Children with it, in order to their Breeding of Teeth the easier.

The too frequent Use of Butter relaxes and debilitates the Stomach, takes away the Appetite, provokes Reachings to Vomit, and heats much, especially if it be old.

Butter contains much Oil, and a little volatile Salt.

It agrees at all times with any Age and Constitution; those, however, who have a weak Stomach, ought to use it moderately, as well as young People of a hot and bilious Nature, because it inflames, and in these last easily turns into Choler.

Butter is nothing but the Cream of Milk, or the fattest and most oily Part thereof, which is separated from the Serum or Whey by Churning; the more fat or oily Parts the Milk contains, the more Butter it yields; and therefore you have more from Cows Milk than any other.

Every body knows, that Butter is used every-where; and there is hardly any Sauce made without it. The Northern People make more use of it than any; and 'tis pretended, that 'tis Butter which makes them look so fresh and well.

The

BUT

The newer Butter is, the more pleasant and wholesome you will find it; and the Reason is, because its oily and saline Principles are then strictly united together; whereas, on the other hand, when Butter is a little too old, it has undergone a sort of internal Fermentation; which has exalted and disengaged these same Principles, which makes it a little sharp, and, at the same time, oily and unpleasant. Now, in order to prevent this Fermentation, and the better to make the Butter keep, they salt it; and the Acid of the Salt preserves its Texture.

The good Effects produced by Butter proceed from its oily and balsamic Principles, which are proper to restore the solid Parts of the Body, by sticking to them; to qualify and embarras the sharp Humours they meet with, and several other the like Uses. When they use Butter to Excess, these same Principles so much moisten the Fibres of the Stomach, that they lose their elastic Virtue.

Lastly, it is observed, that Butter used immoderately heats much; and the Reason is, because the oily and fat Parts where-with it abounds are easily inflamed; and therefore this is not good Food for bilious Constitutions.

Buttermilk is a kind of Serum that remains behind, after the Butter is made. It is very cool and moistening. *Lemery on Foods.*

Butter, by the Texture and Nature of its Substance, tends to relax the Solids, and supplies the Juices with Particles light and adhesive. Upon the first Account it may be good in dry and costive Constitutions; but must be hurtful in lax, moist, and corpulent ones. By the Levity and Tenacity of its Parts, it is also very subject to stop in the Glands and Capillaries, whereby it fouls the Viscera, but particularly the small Glands of the Skin; hence it is subject to produce Blotches, and all cutaneous Deformities. And this Opinion is much confirm'd by the Experience of all whose Business has made them conversant with young Children, they having much of this in their Diet, whereby they have been observ'd to grow weakly, corpulent, big-belly'd, and very subject to Breakings-out, and to breed Lice, and such-like Uncleanlinesses; but upon restraining them from it, without any other visible Means, they have outgrown all those Inconveniences. *Quincy.*

Boerhaave, speaking of express'd Vegetable Oils, thus mentions their bad Qualities, and compares them with Butter.

These Oils have one strange Property, whereby, with the Heat only of seventy Degrees, they presently degenerate, without any foreign Body being mixed with them, and thus become thin, sharp, bitter, rancid, yellow, corrosive, and inflammatory; whereas they were before thick, mild, sweet, almost insipid, white, anodyne, and relaxing. And these surprising Changes happen in a few Days in the Summer's Heat. Is it not therefore strange, that fresh-drawn Oil of Almonds should prove healing and suppling to the parched rough Mouth and Jaws in the Quinsy, and the same Oil in a few Days afterwards suddenly inflame the Jaws of a Person in Health? And the sweeter it was when fresh, the sharper it proves when old and rancid. Hence Almonds, Walnuts, and Pistachos, become exceedingly nauseous when rancid, and subject to occasion a sudden Quinsy in the Throat, and excite a Fever, through the burning Effect they have upon the Mouth, Throat, Stomach, and Intestines. Physicians, therefore, should be cautious when they order Oil of Almonds in acute Distempers, that it be fresh-drawn from Almonds that were not rancid; and, in the Heat of Summer, not kept above twenty-four Hours. The same thing is also found in Butter, Animal Fat, Bacon, Marrow, and the more perfect Oils hereof; all which, though innocent when fresh, become highly nauseous by standing unsalted in a hot Air, where they turn yellow, blue, or green, become rank, corrosive, and fatal in the Plague. Thus a great Acrimony is sometimes found in Cheese that has been long kept, whereby I have seen the whole Mouth violently inflamed. Whence we may easily conceive what Effects it may have upon the Viscera. It is an obvious Experiment, that Oil, by boiling, will soon turn yellow, red, black, bitter, sharp, and unwholesome. And this shews us how Oils may in six Hours time become extremely bitter in the Stomach; and, when vomited up, be erroneously taken for the Bile; for this Matter takes Flame at the Fire. These Observations upon the Nature of Oil may lead us to understand many Particulars in Natural, Medicinal, Pharmaceutical, and Culinary History. *Boerhaave.*

Buttermilk is esteemed an excellent Food, in the Spring especially, and is particularly recommended for Hectic Fevers.

Butter has been recommended as an excellent Application for the Teeth, in order to make them white.

In the Edition of *Schookins de Aversatione Casei*, printed at Groningen 1664. 12mo. there is a Treatise expressly upon Butter.

The Chymists have several Preparations which they style *Butters*; as the *Butter of Antimony*, the *Butter of Arsenic*, the *Butter of Wax*, the *Butter of Lead*, and the *Butter of Tin*.

The Process for making the *Butter of Antimony* is describ'd under the Article *ANTIMONIUM*.

VOL. I.

BUX

BUTYRUM ARSENICI, Butter of Arsenic, is thus prepar'd:

Take of Arsenic, and corrosive Sublimate, equal Parts; reduce them to a Powder; and after mixing them, put them into a Glass Retort plac'd in a Sand-heat; adapt a proper Receiver to the Retort; and having luted the Joins, distil by a small Fire a Butter-like Liquor resembling the *Butter of Antimony*. When no more of this Liquor can be obtained, take away the Receiver, and in its Place put another full of Water; augment the Fire, and you will see the Mercury descend in the Water, Drop by Drop. Continue the Distillation till no more can be obtained.

This Mercury, when sufficiently wash'd and dry'd, may be used for all the Purposes to which other Mercury is apply'd.

The *Butter of Arsenic* is a very strong Caustic, and produces an Eschar sooner than the *Butter of Antimony*.

REMARKS.

In this Operation the same thing happens as in the Operation for obtaining the *Butter of Antimony*; which is, that the Spirits of the corrosive Sublimate quit the Mercury, in order to unite with the Arsenic, which they carry along with them in a gummy Liquor. The Mercury being afterwards disengaged, and not finding Sulphur for fixing itself, it comes over in Vapour, and is condensed in the Water. *Lemery Cours de Chymie.*

BUTYRUM STANNI is thus made.

Put a Mixture of one Part of Tin, and three Parts of corrosive Sublimate, both reduc'd to Powder, into a Retort; and by the same Process used for obtaining the *Butter of Antimony*, we shall have the *Butter of Tin*, which is a thick Liquor, and has this peculiar to it, that it fumes perpetually. *Lemery Cours de Chymie.*

BUTYRUM CERÆ. See *CERÆ*.

BUTYRUM SATURNI. See *SATURNUS*.

BUXTON. A Place in the Peak of *Derbyshire*, celebrated for warm Medicinal Waters, the hottest in *England* next to *Bath*. As I have not had an Opportunity of examining these Waters accurately myself, I must give the fullest Account I can meet with, which is that of *Dr. Short*, who begins properly enough with an Account of the usual Strata of Earth and Minerals, in the adjacent Parts.

In the Coal-pits, a Mile and an half South-west of *Buxton*, the Strata of Earth lie thus: First, Peat-moss; then blue Clay; then Shale full of Marcasites of Iron, and Iron-stone; then sundry Beds of Iron-stone; last of all a Seam of Coal, five Feet thick, mixt with much Sulphur and Brasil, several Lumps of Ocre and Rubric; this Seam of Coal dips a Yard in three; its upper Part is very soft, open in its Texture, and fit only for burning of Lime-stone; its lowest Part is harder, though still a very indifferent Coal, which melts on the Fire, and is form'd into a Cake; sometimes a Vein of Lead an Inch thick crosses the Coal. It is more beautiful than other Ore, and sparkles like fined Silver; but bring it to the smelting Furnace, and you have little besides Sulphur; the Acid of the Coal having consumed the Lead till it reach its kindly Soil the Lime-stone and Greet-stone below the Coal. Fifty Yards below the Surface of the Ground is a strong thick Bed of blue Clay, whose upper Part is of a deep Ocre, or reddish Colour, full of black Lumps like rusty Iron, which, put into Aqua fortis, raise neither Heat nor Fermentation; but in a little time several small Bubbles rise, and the Liquor turns green, which is occasioned by a Dissolution of the Copper contained in it; all the Water in the Coal-pits is very cold; nor can Lime-stone and Coal consist together.

The Strata of Earths in the Lead Mines next to *Buxton* are first a thick-set fine Turf, a Foot and an half deep; then betwixt a Sand and a red Clay, or a reddish sandy Clay, or a hard Soil, half a Yard thick; thirdly, brown Clay, from half a Yard to two Yards thick; fourthly, fine white Sand, half a Yard thick; fifthly, a very hard Rock of white Lime-stone, two Fathoms thick; sixthly, redder Sand, from ten to twenty Fathoms; this is of a hard Substance, and accompanies the Ore; seventhly, a black Lime-stone, from six to eight Yards thick; then they come to the same Sand as before, if there is Ore; but if no Ore, there is a reddish-yellow Bed of Clay, of the Nature of Marl. If they pursue this through the Clay, they come to a yellow Sand with Ore. These Strata lying in several degrees of Thickness, are from sixteen to eighty Fathoms deep: Here is very much white Spar, but none of the green nor yellow; it breaks into Rhomboids. If this be without a Lime-stone, there is very little or no Ore. But if under the Lime-stone Clay appears, the Vein is said to be out, and there remain no more Hopes of Ore, except they soon find the Lime-stone again below the Clay. Most of the Ore lies in Cauce-stone three or four Feet

Feet thick. Here is very little Shale or *Brasils*: Where a Chink happens between the Greet-stone and Lime-stone, it is fill'd up with Petrefactions, between a yellow and a white Colour, and very hard, as Spar. The Workmen, afraid of Damps, are always well provided with Drifts or Levels, that they may be supplied with fresh Air, which, causing a free Ventilation, prevents both the Stagnation of the Air, and a Collection of Sulphur, which might be fired with the Candles. The Lime-stone, in working, smells strong of Sulphur; and their Blasts, (which are Bores made in the Stones, fill'd with Powder, and blown up) being so very strong of Sulphur, extinguish the Smell of the Gun-powder. They have here Spar-ore and Cauke-ore; the last is much the richest. In digging for Stone near the warm Waters, you find several surprising Masses of mix'd Minerals, as tho' they had been artfully melted together, as of Lime-stone, Iron-stone, and Copper-ore, of Sulphur, Iron-ore, of Lead-ore, Iron-sulphur, and Lime-stone.

The warm Waters, which I have observed there at present, are, first, the Bath, which takes in several warm Springs. Thirty-two Yards and a half North-east of it, is St. Anne's Well, which is chiefly supplied from a Spring on its North-side, rising out of a Rock of black Lime-stone, or Bastard Marble, under a shelving Stone laid so on Purpose. Twenty Yards South-east of St. Anne's, in another Close, is a hot and cold Spring, both rising up into the same Receptacle. About sixty-three Yards, South and South-east of St. Anne's, in the same Close with the hot and cold Spring, is Bingham Well, ordinarily call'd Mr. Leigh's Water, a worthy Gentleman seven Miles distant, who has made this Spring his Favourite for several Years, and reap'd great Benefit by it. A little Way, East of this, on the East-side of a Stone Wall, is another small flow hot Spring, which mixes with a beautiful purling cold Spring, that rises up close by it. Another plentiful warm Spring rises up in the Stream of the Level, that carries the Water from the Bath: This is thirty-four Yards East of St. Anne's. Four Yards farther East, on the South-side of this Stream, rise two or three other warm Springs.

Bingham, or Mr. Leigh's, Well is a very strong Spring, rising out of the black Lime-stone, in a very dry Ground; sometimes it throws forth six times more Water than at other times. October 6. 1732. after much Rain, both on that and the preceding Day, this Spring threw forth a prodigious Quantity of Water, whose Warmth rais'd the Spirits in the Thermometer only four Inches and six Eighths in the Forenoon; but it fell yet half an Inch lower in the Afternoon. But St. Anne's Well rais'd the Spirits five Inches above Bingham Well; but the small Spring beyond the last, lost very little of its Heat: So that Bingham Well is rather an uncertain than perennial Spring. But the above two Springs never alter by Vicissitudes of Weather, or Seasons; nor yet that Spring which rises up in the Canal from the Bath, all which three boil up with an impetuous Force in large Bubbles of heated Air, which break on the Surface. I tried these Waters with the Hydrostatical Balance, by immersing the Glass Bubble, whose Bulk was equal to the Bulk of fifteen Drams and a half of common Water, that is, one eighth Part of fifteen Ounces and a half. I found several Variations; for, certainly, to try the Weight of Water, is the most difficult and uncertain Experiment that attends a strict Examination of Waters; it is never a whole Day the same exactly, but differs according to the Expansion or Condensation of the Air in them, the Quantity of Water contain'd in the subterraneous Channels, the Rapidity or Slowness of its Motion, whereby it brings more or less foreign Matters along with it, its Stagnation, and some other Circumstances. September 15. being a very clear hot Day, with a small Breeze of Wind, till Two o'Clock of the Afternoon, then, at Three o'Clock, Thunder, Lightning, and a prodigious hot sultry Air, St. Anne's and Bingham Well weigh'd three Grains and a half lighter than the River-water; that is, near twenty-nine Grains in a Pint; the Bath was four Grains lighter than these, that is, thirty-three Grains in a Pint. I put some of each of those Waters into three different Glasses, set them into the Air-pump, exhausted the Air out of the Receiver; but scarce had we the least Bubble, only it was whitish, as if a little Flour had been mix'd with it; and tho' I made what haste I could, lest the Water should cool in the Bath-room, yet it weigh'd two Grains heavier when I had done, that is, sixteen Grains in a Pint. March 17. early in the Morning, being a hard Frost, strong East Wind, and some Hail, I made a fresh Trial, and the Bath was seven Grains lighter than the River-water, that is, near fifty-eight Grains in a Pint. St. Anne's and Bingham were each six Grains lighter than the River, that is, about forty-nine Grains lighter than common Water, and nine Grains in a Pint heavier than the Bath.

April 17. the Air being pretty temperate, the last two weighed only four Grains and a half lighter than common Water, that is, thirty-six Grains in a Pint. I took up a Pot of each of those Waters, and a Pot of common Water, set them upon a Table in my Room, that they might be of an exact

Temperature; next Morning all three weighed a Grain and a half lighter; the last, when taken up, and allow'd to stand still, it settled, and let fall all its grosser Parts; being heated to the same Degree of Warmth with the Bath, both were nearly of the same Weight.

As to the Warmth of these Waters, I took a Thermometer whose Tube was fifteen Inches long, and the Diameter of its Bore one Twenty-third of an Inch, and fill'd it only so high with Spirits, that on the fifteenth of September, (as above) when the Thermometer was set in Buxton River, the Spirits were two Inches and one Fourth above the Ball. This Tube being set in the Bath one Quarter of an Hour, the Spirits rose four Inches and six Eighths higher, that is, to seven Inches. St. Anne's Well brought the Spirits down one Fourth of an Inch in the Tube; Bingham Well brought them still five Eighths of an Inch lower. On the same Evening the Sky clear'd again, and all East, North-east, and North-west, up to the Zenith, was cover'd with *Auroræ Boreales*, or Streamers, the Air at the same time being very calm: Next Morning there was a gentle Frost, and the Spirits in the Thermometer were only one Inch above the Ball, that is, one Inch and one Fourth lower in the Tube than they were the Day before. I set the Thermometer in the Bath-room for half an Hour, and the Steam rais'd the Spirits one Inch and seven Eighths higher: Then I set them in the Bath-room for half an Hour, upon which the Steam rais'd the Spirits one Inch and seven Eighths higher: Then I set them in the Bath for thirty-five Minutes, and they mounted up to the same Height they were the Day before. December 27. 1731. being, perhaps, the coldest Day that has been known in England this Age, (for a strong North Wind blow'd, and the clear Frost was so violent, that in seven Hours time the Ice bore Horse and Rider, tho' it rain'd and snow'd the Night before, till Two o'Clock in the Morning) the Spirits in the common Thermometers were at excessive Cold, tho' the Glass, I observed, hung in a Stair-case between two Rooms, with continual great Fires, and the Door of one Room was never shut, nor was there any outer Door near. The Spirits in my small Thermometer were more, within the Ball, than would fill an Inch of the Tube: Both Thermometers being set in a Pitcher of River-water that Moment taken up where the River was most frozen, the Spirits in the first Thermometer presently rose six Minutes or Degrees, and those in mine just fill'd the Ball. Three Fourths of a Pint of boiling Water, put to three Pints of this River-water, rais'd the Spirits in my Thermometer to the exact Height that Buxton River did, on September 15. and one Pint and a Quarter more of boiling Water, being added, brought it just to the Warmth of Buxton Bath; that is, it rais'd the Spirits in the Thermometer to the very same Height. So that I take these two for the great Extremes of Cold and Heat, all the rest being intermediate Degrees. January 10. being cloudy Weather, sharp Frost, and some Snow, the Spirits in my Thermometer fill'd not the Ball: I put it into Bingham Well, and the Spirits rose a little above the sixth Inch; but being removed thence into St. Anne's Well, they ascended one Eighth above the seventh Inch; and when carried thence, and set in the Bath, they rose to seven Inches five Eighths, and there stopp'd. May 27. being a very stormy Day, with a raging Wind, and great Rain, I tried two new Thermometers with fresh Spirits; the Bore of the larger Tube was one Twenty-third of an Inch, that of the lesser was one Twenty-seventh of an Inch: I put both in the River, which was then in a Flood; the Spirits in the smaller were hid within the Ball, those in the larger were one Inch and three Eighths above the Ball: I removed both into the small Spring beyond Bingham Well; upon which the Spirits in the small Tube rose eight Inches, and those in the larger Bore seven Inches, that is, to eight Inches three Eighths. When both were taken out of this, and put in Bingham Well, the Spirits in the smaller Bore rose to eleven Inches, and those in the larger to nine Inches; but when both of them were set in St. Anne's Well, the Spirits in the smaller Tube rose to fourteen Inches five Eighths; and when both were put into the Spring beyond the hot Bed, which rises up in the Level that carries the Water from the Bath, the Spirits in both Thermometers rose one Eighth. I carried them thence, and set them in the Bath; upon which the small Bore rose to fourteen Inches three Eighths; with this last I stripp'd, and went into the Bath, and put it upon the Spring at Bottom, next the Pump, and it rose to fourteen and a half: Then I removed it into the second Spring, which rises out of the black Rock, and it yet ascended one Sixth of an Inch higher; but here the Tube being but sixteen Inches long, the Air above the Spirits was compress'd into so narrow a Compass, that its Resistance was too forcible for the Ascent of the Spirits. Then I suspended the Spirits upon the Surface of the Bath, and the Spirits fell down to fourteen Inches one Tenth; so that, when the Bath is full, the second Spring is a one hundred and seventeenth Part warmer than the first, even in this whole Mixture of Water; and the Bottom of the Bath is one fifty-sixth Part warmer than its Surface. It is pleasantly surprizing to stand in the full Bath, and see the Ex-

halation

halation of the compress'd and rarefied Air, and sulphureous Steam, continually playing on the Surface of the Water; like the Transition of the fiery Particles in scalding Water before it boil, and is yet calm and clear; or just as if a Cloud of small Flies were rising up, whose Feet raised a small, but general, turbid Motion on the Top of the Water: Common Water, when made of the same Warmth with that of the Bath, during the first thirty Minutes, cool'd faster than that of the Bath by an hundred and twelfth Part; but, after that, the Bath-water cool'd sooner by an hundred and eleventh Part.

Neither Dr. Lister, Sir John Floyer, Dr. Leigh, nor Allen, in their treating of these Waters, have once attempted to give us the Quantity of Water these Springs throw out in any given Time. This I endeavour'd to satisfy myself in, and I find it as follows: St. Anne's Well throws out three hundred and ninety Gallons of Water in an Hour, or nine thousand three hundred and sixty Gallons in a natural Day and Night, or three millions four hundred sixteen thousand and four hundred Gallons in a Year.

Bingham Well varies in its Stream, being sometimes higher, sometimes lower; but when I examin'd it, in a great Drought, it discharged seventeen hundred and fifty-eight Gallons of Water in an Hour. Six Quarts of this Water, exhaled, left thirty-three Grains of Sediment, twenty whereof were salt: So that this Spring sends out thirteen millions six hundred and forty-seven thousand one hundred and eighty Gallons of Water in a Year, which carries in it forty-eight thousand three hundred and sixty-eight Pound of fix'd Sediment; near two Thirds of which being salt, it must of course afford thirty-two thousand two hundred forty-five Pounds five Ounces two Drams and two Scruples of Salt in that Time; the rest is Earth, besides a Fragment of twelve Ounces and a half of Sediment. The little Well of warm Water, thirteen Yards East of Bingham Well, affords seventy-eight Gallons and a half of warm Water in an Hour, or six hundred eighty-seven thousand six hundred and sixty in a Year.

All these four warm Springs together throw forth, in a Year, ninety-seven millions six hundred and eighty-one thousand eight hundred and sixty Gallons of Water; besides the waste Water that gets out of the Bath, and the strong Spring rising up in the Middle of the Bath-level, beyond St. Anne's Well, and the warm Water which rises up in the hot and cold Spring; and lastly, the two small warm Springs which rise up in the low Ground, between the hot and cold Spring, and the large Spring in the *Sough*, with several other Outings of warm Water in sundry other Places; so that the Whole, added together, will be near double this Computation.

All these Waters brighten the Solution of Gold; and first make the Solution of Silver white, then turbid; after which it lets fall a large white Sediment. They turn Solution of Iron and Mercury yellow. Solution of Sublimate turns them first of a faint Pearl Colour, and clear; but, by long standing, they become muddy and blackish. They presently become white by Solution of Sugar of Lead, and then let fall a large Sediment. Oil of Tartar makes them first of a bluish White; and, in one Night and a Day, you have a Sediment of the same Colour, half an Inch high. Spirit of Vitriol, and the Oils of Salt and Sulphur, turn the Water rather clearer and finer, tho' they raise a visible intestine Commotion, and the Sides of the Glasses hang full of Air-bubbles. Spirits of Hartshorn, or Sal Ammoniac, change it to a whitish Clear; and, upon standing twenty-four Hours, leave a small Sediment like Wool or Cotton. Syrup of Violets made it first blue, then greenish. Syrup of Cloves made it of a whitish Blue, and muddy; Tincture of Fustic, of a pale Sack Colour; Tincture of Logwood, of a beautiful Red; Tincture of Galls, of a muddy yellowish Colour, which in four Days time turn'd green. Green Tea alter'd it not. Tincture of red Roses gave it a Brandy Colour. Rum, Brandy, Balaustian Flowers, Pomegranate-peel, and Oak-leaves, produced no Change in it.

The Water of Bingham Well, upon being mix'd with the aforesaid Ingredients separately, in sundry Glasses, and allow'd to stand all Night, next Morning that Portion mix'd with Solution of Silver was of a Pearl Colour, clear at Top, and let fall a large Sediment. With Tincture of Rhubarb it assumed a yellowish-brown Colour. With Solution of Sublimate the Liquor remain'd clear, but the Sides and Bottom of the Glass were blackish. With Spirits of Hartshorn it was changed into a bluish Green. With Tincture of Fustic it became yellowish. With Tincture of Brazil it was changed into a light faint Red. With Tincture of Logwood it assumed a deep reddish-brown Colour. With Tincture of Galls a deep purple Scum appear'd on its Surface; it was yellowish in the Middle, and of a bluish Pearl Colour at Top and Bottom. With French Brandy it was clear, but darker than common Water.

The Differences between this and St. Anne's Well were very small; the former made Solution of Silver of a bluer White, and afterwards of a more purple Colour, than the latter. It also retain'd its reddish Colour longer with Syrup of Cloves; it let fall more Sediment with Solution of Lead; and its Sedi-

ment, left after Exhalation, was more pungent and saline, and at the same time very white. Eleven Quarts of it, at another time, left thirty-three Grains of Sediment; twenty-four of which were a white Salt, which changed Syrup of Violets to a beautiful light-green Colour; but the Salt of St. Anne's Well made little Alteration upon it. The former also turn'd Solution of Sublimate a little Orange-colour'd; and, mix'd with Sal Ammoniac, sent forth an urinous Smell. It crackled a little on a red-hot Iron, but did not swell much. It fermented strongly with Acids, but not with Alcalies.

Bingham Well-water being fetch'd sixteen Miles, and kept five Nights, I compared it with common Pipe-water, which had stood two Nights in a Leaden Cistern. Tincture of Rhubarb turn'd common Water of a light-yellow Colour; but Bingham Water was by it changed into a reddish, or reddish-brown Colour. Solution of Sublimate changed not common Water, but produced a Pellicle on its Surface of a Red, Blue, and Yellow, according to the various Directions of the Rays of Light. Bingham Water became whitish, and had a Scum of Yellow, Red, Green, and Blue. Oil of Tartar made no Alteration on this common Water; but the other was first white, then curdled, and deposited large and whiter Flakes at the Sides and Bottom of the Glass. The acid Spirits raised a greater intestine Motion, and more Bubbles, in the Mineral Water than in the other. Spirits of Hartshorn had no Effect on the latter, but changed the other white, which became also greener with Syrup of Violets than the common Water. After standing four Days longer, Tincture of Brazil Wood had turn'd the Bingham Water of a deeper Red than the other; and Tincture of Galls and Sumach had changed the former green throughout. Solution of Silver had made it of a light Purple, but the common Water was a pale Pearl Colour.

When I had kept the Bath-water, that of Bingham Well, and that of the hot and cold Spring, for a long time, then, with Tincture of Nephritic Wood, they all became whitish first, then pale, lastly curdled, and became green. The second of these, with Solution of Silver, was reddish; but soon chang'd to a Pearl Colour. With Tincture of Galls, both it and the third were first of a muddy Clay Colour, then of a Leaden Colour, and cover'd with a variegated Scum; but that of the Bath, with Tincture of Sumach, became wholly green in five Days. Syrup of Violets turn'd Bingham Well very green in two Days.

I exhaled each of those Waters several times, and always found some Difference in the Quantity, but never in the Nature of their Sediments, which was always the same: The former, that is, the Quantity, was varied, sometimes by the Water, sometimes by the Fire, and sometimes by the Vessel. Not only the Sediment, but also the Salts, fermented with Oil of Vitriol; they also crackled in the Fire, and swell'd a little. But, finally, to be satisfied of both their Kind and Proportions, I set them to crystallize: The Bath-water afforded both Sea-salt and Nitre, but most of the former. The Salts of St. Anne's Well were the same in Kind, only they yielded more Nitre than that of the Bath. Bingham Well-water contains most Nitre of any of them, and less Marine-salt. I took the Crystals of Nitre from the Marine-salt, dissolved them, and set them to project into regular Crystals, that I might obtain their true Figures.

From the preceding History we draw the following Observations:

That tho' there is Plenty of Ocre, Iron-stone, and Sulphur, in the Coal-pits here, which are generally reputed the Cause of hot Springs; yet the Water is so far from being warm, that it is intensely cold; so that, in order to cause Warmth, there must either be some other Materials, or there is a Mixture of other Ingredients, which prevent their Effect in warming the Water; or these Ingredients are mix'd in undue Proportions.

Again, since we find the Veins of Lead, crossing the Coal, corroded, it is plain, that Vitriol acts upon and consumes Lead as well as other Metals.

Since Lime-stone and Coal cannot agree, we see, that the alkaline Earth of the former is as hurtful to the Acid of the latter, as this Acid is prejudicial to Lime-stone; for, that it is not the Nitre in the Lime-stone that is hurtful to the Coal, appears from this, that most of the Chalybeate or Vitriolic Waters contain also a fix'd Nitre.

However homogeneous Buxton Waters may appear, or however similar in their Nature to common Water, in all other respects, besides their greater Heat; yet seeing several of the above-mention'd tincturing Ingredients, produced in them Phenomena differing from those produced in common Water by them, it must therefore contain some other Principles than those of common Water.

Tho' it cannot be denied, that this Water has a Mixture of different Principles; yet seeing it is still eight or ten Grains in a Pint lighter, when cold, than common Water, this shews, that it has fewer earthy or other gross Parts in it than River-water.

Since

Since common Water, made equally hot with *Buxton* Bath-water, cools sooner at first, but slower than it toward the latter End, *Buxton* Mineral Water must of course either have less gross and foreign Matter in it, or this Matter must exist in smaller Particles in the Water, and so give less Resistance to the flying off of the less rarefied Particles of Heat.

Seeing *Buxton* Water is so much lighter and warmer than common Water, before it has received any culinary or artificial Fire into its Pores, to rarefy the Air contain'd in it, it is plain, it brings something along with it, which is equivalent to the fiery Particles in heated Water; which being occasion'd by this Water's washing Mixtures of several Minerals in its Course, we shall therefore call that a Mineral Vapour.

Since this Water washes so many Ingredients abounding with Sulphur, and since we find, that even gross Sulphur, by the Mediation of Lime-stone, communicates some of its Parts to Water; and also seeing there is constantly such a visible sulphureous Halitus upon the Surface of *Buxton* Water; it is reasonable to think, that this Water, whilst warm, is impregnated with a sulphureous Steam or Vapour, as one Part of its Mineral Spirit.

From the whole Processes and Experiments made on *Buxton* Waters, it is plain, that the Minerals, warming and impregnating these several Springs, are the same; only differing somewhat in the Proportion of their Ingredients.

These Minerals lie in a Stratum, or Bed, from West to East.

Since *Bingham* Well increases or decreases upon Vicissitudes of Weather or Seasons, 'tis hence probable, that its Spring is not supplied from any great Depth in the Earth, but chiefly from the Surface of the Ground, and the small Hill above; and seeing both it, and the small warm Spring beyond it, (which I have seen quite dry) are so superficially provided, and yet warm, the impregnating Ingredients seem not to lie very deep in the Earth.

Since these Waters continually bring up so large and numerous Bubbles, with an impetuous Force, from the Bowels of the Earth, then must their Interstices be richly stored with a fine Air, which produces this Effect.

Seeing *St. Anne's* was known to be of the same Nature, and threw forth the same Quantity of Water before the Bath-level was made, that it does since; and since, from this Well to the Bath, there is a continued Rock of firm black Lime-stone, or a Substance between Marble and Lime-stone; and especially, seeing the main Spring, which supplies this Well, rises up thro' a black Lime-stone on that Side next the River, and not on that next the Bath; and, in the last place, since we find two considerable Differences in its Contents from those of the Bath-water; it is ridiculous to suggest, that this Spring has any Communication with the Bath.

Since there is such a Difference at sundry times in the Weight of these Waters, it follows, that there is no certain Standard for determining their specific Gravities; only this, in the general, is certain, that they are lighter than other common Water, and that the lighter they are, so much the more are they impregnated with the Mineral Spirit, and the fewer extraneous Bodies they bring along with them; and the lighter they are, the warmer; and the warmer, the more medicinal.

The more the Pores of the Earth are lock'd up by Frost, or fill'd with Water, provided these affect not the Springs, the warmer and lighter is the Water; and the warmer it is, so much stronger is its Mineral Vapour, and therefore the more powerful are its Virtues.

From the Use of the Thermometer we see, first, The different Degrees of Heat contain'd in the several Waters. Secondly, We find that there are different Degrees of Heat contain'd in the same Water in the several Seasons of the Year, and according to the various Temperatures of the Air. Thirdly, That these Waters are not relatively, but absolutely, warmer in Winter than in Summer, in Frost than when there is none, in a cold than in a hot Season, the Bath at least being one twentieth Part warmer in Frost or Winter, than in warm Weather. Fourthly, That, in a great Frost, four Fifths of the coldest Water not frozen, and one Fifth of boiling Water mix'd, make the just Warmth of common River-water in hot Weather about the Autumnal Equinox. Fifthly, That a Quart of boiling Water added to three Pints of such cold Water, in an earthen Vessel, at two sundry times, about seven Minutes Distance from each other, gives the true Warmth of *Buxton*.

Or five Eighths of a Quart of boiling Water, added to three Pints of common River-water in Summer, gives the exact Heat of *Buxton* Bath in that Season; and then whatever raises such a Thermometer five Eighths of an Inch higher, shews you the Warmth of *Buxton* Water, in a strong Winter Frost.

By these Experiments we have the Quantity of Water each Spring sends forth in a given time. Secondly, The Proportion that the Vehicle and fix'd Parts have to each other. Thirdly, The Proportions of the Earth and Salts separately.

And, lastly, Which of the different Salts exceeds the others in Quantity.

From the small Proportion of the fix'd Parts in those Waters to their Vehicle, especially considering the small Quantity that should be drank, it is plain, these Parts can do little to the Removal of any obstinate Chronical Disease. Suppose, for Example, a Man daily drinks four Pints of Water, at most he swallows not, with this Dose, above five Grains of Lime-stone Powder, which we shall call an Alkali or Absorbent, and two Grains and an half of Marine-salt, and as much Nitre, which let us suppose stimulant: What can these do? If he should drink half that Quantity of common Water that comes from the white Lime-stone Hills, he shall have as much alkaline Earth, if not some fix'd Salt, besides a vegetable Salt: Yet who would call these Medicinal Waters? Hence it is plain, that the Virtues of our Waters consist, first, In the pure, smooth, fine, common Vehicle; and, secondly, In their Warmth and Mineral Spirit.

Is the Bath, when its Doors and Windows are shut, warmer than when open'd? Is the Bath that is shut up on all Sides, warmer than *St. Anne's* Well, which is only shut up on three Sides? Is this warmer again than *Bingham* Water, that is wholly exposed to the open Air above and on all Sides? Then it is plain, that were these Waters kept close cover'd, and their Heat reverberated, they might still be much warmer.

From the Experiments made with the Mixtures, we see first, from the intestine Motion excited by the acid Spirits, That the Water contains an Alkali. Secondly, That this Alkali being precipitated by a Solution of Sugar of Lead, or the Water thrown into an Alembic and distilled, and that which comes over with a slow Fire tried, neither of these Waters ferment with Acids. Thirdly, Not only the alkaline Nature of this Earth, but its Whiteness, shew it to be Lime-stone Powder, tho' it warm not the Water after Calcination. Fourthly, This Earth being calcined in a Furnace, which quickly melts Iron, and then applied to the Lead-stone, it attracted this Dust or Powder briskly; therefore I conclude it contains also Iron-stone. Fifthly, Seeing the Water precipitates the Solution of Silver, and a Part of its Salts runs into Crystals of a cubic Figure, like a Dye, a Part of its Salt must be Marine-salt. Sixthly, Since it lets fall a Sediment with Oil of Tartar, and Spirit of Hartshorn, and also affords some long Crystals with six unequal Sides, terminating at each End in a Pyramid under several Triangles; we conclude, it contains also Nitre. Seventhly, Seeing neither Galls nor other Astringents alter'd this warm Water, we cannot trace any Vitriol, either volatile or fix'd, in it, nor does it taste chalybeate; however the Credulity of some People may impose upon their Tastes, and tho' the Lead-stone attracts some of its calcined Earth, it does the same with most other Earths, which never afforded any Solution of Vitriol, nor any Appearance of it. Eighthly, Did *Bingham* Well, when putrified, and its Sulphur spent, become red with Galls, and purple with Solution of Silver? Then it must not only partake more eminently of Nitre, but also have more of the Chalybeate Principle in it, than any of the rest.

Did these Waters afford sundry Proportions of Sediment at different times? Then they are not alike fraught with their fix'd mineral Principles at all times. Secondly, We may hereby observe, that when their fix'd Contents are least, their volatile Principles are most, as in Winter and very cold Weather; and when their volatile Spirit is smallest or weakest, their fix'd Parts are proportionably increased, as in very dry and hot Weather. Thirdly, Have several Authors examin'd the same Waters at several times, and found their Contents to differ in Quantity, but not in Kind? Then are they not to be arraigned and accused about small Differences, as is too ordinary.

Does *Dr. Lister* tell us, that *St. Anne's* Water proves emetic upon swelling down large Quantities of it? This is nothing peculiar, but what it has in common with all other Water. Secondly, Does he assert a Quantity of Pit-coal to lie immediately under the Lime-stone, out of which this Water springs? It is surprising how so good a Naturalist could make such a Blunder; for, first, Lime-stone and Coal are found inconsistent with each other in the Peak-country. Secondly, Who ever found warm Water in Coal? Thirdly, Tho' the Sediment of those Waters be very small, yet it at least affords a Scruple to a Gallon; tho' he obtained but one Scruple or two, out of four Gallons, this must have been owing to some Neglect or Mismanagement. Fourthly, He says the Sediment was all Salt, and no Stone Powder, whereas the *Bath* yields above one Half, and sometimes two Thirds of Stone Powder to one of Salt. Fifthly, The Salt, he says, is chiefly marine. Tho' this be true of the *Bath*, yet *St. Anne's* Well contains as much Nitre as Marine-salt, and *Bingham* Well more than either of them. Nor, sixthly, Can I here overlook *Allen's* Account of this Water. For, first, He will have but three warm Springs here, viz. two for Bathing, and one for drinking:

Now

Now the outer Bath is no Spring, but supplied from the inner Bath. Secondly, He says, that it is as warm as Blood newly let out of the Veins; but, had he used a Thermometer in examining both, he would have found the former much short of the Heat of the latter. Thirdly, He will have Lead, Iron, and Sulphur to be the Principles that mediate this Water; but how can Lead communicate any of its Parts to the Water, without it be dissolved? Where is the Solvent and Menstruum? And, if it had a Solvent, it would be Vitriol, which would long ago have corroded and consumed the Lead, and left only a bright Sulphur; and since Lead is the chief medicating Principle, the Springs would now be no more than other common Springs. But allowing (contrary to Reason and Experience) that the Lead did still impregnate this Water, it would be Poison instead of Physic, as we see from the Accidents that happen to those who smell, and to the Animals that drink the Waters wherein there is Lead, how soon they are seized with a *Bellon*, and from the Effects of Sugar of Lead taken inwardly. Nor, thirdly, Has the Water a sulphureous Taste or Smell, as he alledges. Nor, fourthly, Do Galls give this the same Colour as they do the *Bath Waters*, nor a Leaden Colour, which he will have to arise from Lead. The Sulphur he will have to be that of Lead. *Jones* is much more in the Right, when he thinks the Water is too pure, delicious, and fine, for any such Principles as Lead, Copper, or Alum; and contents himself with an impalpable Sulphur.

Now let us see what Medicinal Uses these Experiments and Observations will help us to make of these Waters: In this we shall receive some Assistance from Mr. *Martin's* Account of the Effects of warm Bathing, whereby it is plain, first, That, by the Waters penetrating the Pores of the Skin, it gets into, and mixes with, the Blood, and other Juices, on the Surface of the Body, and thereby increases its Weight. Secondly, That, by this Insinuation of the tepid Steam into the Pores, the Skin is relaxed, its Pores dilated, the Fluids in the Capillary Vessels thinned, their Motion made easier, and their Evacuation promoted. Thirdly, Tho' the Addition to the Weight of the Body by Bathing may seem small, yet we must allow a considerable Discharge by Perspiration during Bathing, both from the Pressure of the Water, added to that of the Air, upon the Body, and the warming relaxing Nature of the Water. But to proceed.

Since these Waters contain so much Air in their Interstices, they must greatly promote Digestion, except they be drank too long; and then, from their very Warmth and Nature, they must relax the Stomach, and retard all the Digestions, unless the Use of them is left off. But the Waters being warmed by Bodies of a different Nature, either brought together, dissolv'd, or set in Action, by the Water, this Action cannot be without the Communication of some of their Parts, which little Parts must be lodged, together with the Air, in the Interstices of the Water; then not only does the Air (consider'd as a simple Ether) promote Digestion and Attenuation; but being springy, and full of those subtle, invisible, intractable Particles of Mineral Bodies, or Substances, of what a diluting, opening Nature must they be in Animal Bodies? How near in Smallness and Subtlety do they approach to the Particles of Light and Heat, since we have no Vessels that retain one more than the other? And since they are not retainable in the cold Water, wherein we suppose the Air in a stagnant, compressed State, how trifling is it to imagine or attempt procuring of them by Force of Fire in Distillation, whereby the Air is heated, rarefied, and expanded, and even their Vehicle, the Water, so rarefied, that it rises up in a Smoak, in both which they are at greater Liberty than before to make their Escape!

Since these Particles are so much less, and more subtle, than the most volatile Spirits obtainable by Art, such as those of Hartshorn and Sal Ammoniac, which may be shut up and preserved in so porous a Body as Glass, how impossible is it, that the smallest Vessels in human Bodies, tho' never so much obstructed, (if not grown up, and become tendinous) should hinder their progressive Motion! Will they not even find a Passage between the Interstices of the Fibres that constitute the Sides of the Vessels, and, *a fortiori*, much more in their Cavities? How well then must such a Water at the Spring-head, thus fraught with its subtle mineral Principle, be disposed to carry on the Work of opening and clearing the minutest Vessels in the remotest Extremities of Animal Bodies, or in the smallest Vessels of the Periosteum, in either of the Coats of the Brain, or Spinal Marrow, or in the Brain or Marrow itself, which contain the smallest Vessels comprehensible by human Conception? From this it follows, that these Waters are better adapted to Obstructions from the twentieth-rate Vessels, to the smallest in the whole Body, than to those of the larger and first-rate: No Wonder then, if they produce such surprising Effects in Gouty, Rheumatic, Arthritic, and Scorbutic Pains, all which have their Seat in Vessels so small, as scarce to be come at by Medicines. Again, if we consider this Spirit as wrapt up in Air, it is not only subtle and pene-

trating, but also elastic or springy, so that, when the Heat of the Body is added to its Warmth, it will be so much the more springy, and expand the smallest Vessels, relaxing them, and so making room for the obstructing Matter either to be expelled from the Body, or so attenuated as to be thrown back into the larger Vessels, till it is more attenuated, digested, and fitted for Evacuation by some of the common Outlets. But is the Water attenuating, and the Spirit elastic? Then, not only does the former dissolve the gross Humours, but the Particles of the latter being got between them, and dilating themselves like a springy Wedge, will turn the attractive Force of these Humours into a Repulsive, whereby they are gradually separated, broken, and mix'd with the intercurrent Fluid; but as the Humours cannot be attenuated, and divided into smaller Particles without increasing their Bulk, especially when at the same time there is a Quantity of this Water thrown into the Body, and mix'd with them, this Fusion of the Blood disposes some of its Parts to get into improper Vessels; for one Globule being hereby divided into two or three, they are then capable of entering Vessels that before would not admit nor receive them when only one; and these Vessels being conical, the globular Parts thus divided must stop, before they can reach the Extremity of the Vessel; hence new Obstructions of another kind must be produc'd by this powerful Diluter, which must remain, except either the Vessel relax, and give way, or the stopp'd Globule must be split into two or three others; but, by this necessary Force, the Action of the Vessel is increased, whereby the Blood's Motion becomes brisker: And now both the Quantity and Velocity of the Blood are increased, but the Coats of the Vessels not being hereby strengthen'd, but weaken'd, according to their greater Dilatation or Stretch, if they were weak before, and full of Blood, then Hæmorrhages must necessarily follow, except prevented by due and timely Evacuation, or Reduction of the Humours to their former Standard, that the Vessels may again be restor'd to their natural Dimensions, Strength, and Resistance. But if we are assur'd from Fact and Experience, that there is a mineral Spirit in these Waters, and want to know the Nature of this mineral Spirit, let us get acquainted with the Minerals wash'd by the Water, and consider which of them are capable of having some of their Parts separated by the Water, and which these Minerals are that can neither have their Parts separated nor dissolv'd; and we are sure, that this Spirit must be from the former, and not from the latter of these: But what these Materials are, we have seen before; therefore the Spirit must be of the same Nature, as its Effects, as well as Theory, prove.

From the Whole we see, that the Intention and Effects of those Waters are Relaxation and Dilution; and where-ever these are indicated, this Water will be of the greatest Service; which is, when the natural and necessary Secretions are lessen'd, from whence arise Obstructions in the small Vessels; but it is of the greatest Benefit in those Obstructions which arise from a Sharpness, Saltiness, or Earthiness of the Blood and Lymph, or from an accidental (where there is no natural) Disposition to a Rarefaction of the Blood, some of whose Parts have mistaken their common Road, in all which Cases we suppose a Stimulus in the Vessels from Pain; since it is impossible the fix'd Parts of this Water should prove a powerful Stimulus. Its Efficacy extends particularly to all Contractions, Stiffness, or Crispation of the Solids and Vessels, when their Parts are so close, that the Fibres are inflexible by such Causes as in a natural and healthy State should bend them: Or where there is a Difficulty and Indisposition sometimes in the Fibres and Vessels, preventing their ready and easy Distention and Contraction, as is mostly the Fate of old Age, and hard Labourers; which is evident from a more difficult bending and contracting of their Joints and Muscles, and from their greater Inability to Rheumatic and Arthritic Pains; and if young People be hard plied betimes in Life, their Fibres are sooner stiffened, become stronger, and are at their Growth, or prevented of their full Growth, sooner; for by whatever means Growth is hastened and finished, the Period of Life is so much shorten'd. Hence such as are of the slowest Growth, provided they live regularly, and escape Accidents, live longest, for the same Space of Time they take to Growth, they stand still as long, and decline the like Time; for should one Man grow till thirty Years of Age, from that he is at a Stand to sixty, and grows back again or declines to ninety; then dies: If we suppose another, who has unnaturally hastened his Growth at sixteen, he cannot outlive forty-eight or fifty at most: Hence it is plain, that such as rejoice at their Childrens early Growth, and such as are uneasy at their slow Growth, are equally foolish. It is judiciously observed by *Sanctorius*, that from the time Men begin to decline and grow old, Perspiration is diminished, and the gross Parts of the Blood are retain'd; which, being gathered to the Thorax or Breast, are expectorated by Coughing, or they are heaped up at the Extremities of the Vessels, the increasing Stiffness of the Parts still occasioning a Waste of the more subtle Parts, and a Collection of the grosser: Hence Diseases from mucous or sily Humours, laid up in one

Part or other of the Body, as Catarrhs, Rheumatisms, Pains of the Joints, Atrophies, Marasmus, and a gradual diminishing of the Actions depending on the small Fibres, as Hearing, Seeing, Memory and Judgment; for the Vessels of the Brain being then partly shut up, and partly become callous, so as to be unfit for the more noble and elevated Actions, then the Person becomes childish, and wears out of Life without much Pain or Uneasiness, and all from a Stiffness induced on the Fibres, and diminished Perspiration.

Upon the Whole, *Buxton* Water being warm; highly impregnated with a mineral Steam, Vapour, or Spirit, containing a most subtle and impalpable Sulphur, and being the Product of Lime-stone, it is therefore rarefying, heating, relaxing, attenuating, sweetening, and a little drying; hence it is signal-ly beneficial, and surprisingly successful, in the Gout, Rheumatism, scorbutic and arthritic Pains, wandering or fix'd Pains inveterate or recent; Cramps, Convulsions, dry Asthmas without a Fever or quick Pulse, bilious Colic, want of Appetite, and Indigestion from Intemperance and Hard-drinking, as also in Contractions, Stiffness and Lameness arising therefrom in any Part, Barrenness from a Constriction and Indilability of the Fallopian Tubes and Uterus; Painfulness, a total Want or other Irregularities of the Menfes from the same Cause; in all Stoppages, and beginning Obstructions; and in preternatural Rigidity of the Vessels, or where external Tumors compress the small Vessels, or where there is an Over-growth, or too great Strength, of the Vessels resisting the Fluids; in St. Antony's Fire, Tetter, Ring-worms, Scab, Itch, and Morpew; it is also useful in the Beginning of the Swellings on the Bones or Periosteum, which are soft, yielding to the Touch; or of the Consistence of soft Wax called Gummata and Tophi, as also in Nodes, in chalky Tumors in any Part of the Body, inward or outward. In all hard callous Swellings it eases the Pain, and softens considerably; in old Strains or Pains afflicting People upon Change of Weather, whether they be originally from broken or disjointed Bones, Distortion of the Parts, or pulling them out of their natural Position; in any Withering or Pining of the Parts; in want of Perspiration from Cold, without a Fever, or Load of Humours; for Heat, Stranguries, and Stoppage of Urine; in too great a Contraction of the Urinary Passages and Strainers; for scouring off Sand, Gravel, and Mucus, out of the Kidneys; in Hiccoughs and Vomiting, from a saline Matter, stimulating and contracting the Stomach or Midriff; in a Dysentery, from salt Humours, raising violent Gripes, and convulsive Pains.

I might here subjoin several secondary Uses of this Water; but the common Vehicle being the only Physic in them, in this Case I shall advise both drinking and bathing; but by no means the last in a Fit of the Gout, inward Inflammations, Fevers, Dysentery, large inward Tumors, Vomiting or Purging of Blood, or where-ever an outward Pressure of the Body may do Mischief.

As to the Age, Sex, and Constitution of the Patient, the particular Lightness and Purity of those Waters recommend their Use, as safe and successful, to all Ages and Sexes, Children, Youth, Men, Women with or not with Child, except in the first and last Months. No Caution or Difference is here to be regarded; only I would not advise young Persons, very full of Blood and Juices, which run with a rapid Course in their Vessels, to be too free with them, from the twenty-third Year of their Age, till the thirtieth. Bilious or choleric Constitutions, phlegmatic, and melancholic, may use them at Discretion, provided they do not overdo the Matter; but the Sanguine must be a little more upon the Watch; for, since they rarely the Blood, and increase both its Bulk and Motion, as well as add somewhat to its Quantity by bathing; so that their Vessels, being pretty well fill'd already, as often appears from their low brisk Pulse, and florid Countenance, here the Waters may distend the Vessels more, drive the Blood forward till it cause Obstructions, Stagnation, Inflammations, Fevers, or a Discharge of Blood, by some Evacuation, from a Rupture of the stretch'd and weaken'd Vessels. Neither should I be fond of advising phlegmatic gross Bodies, after the Meridian of Life, to continue it long, except for a few Days bathing, to open the Pores of the Skin, attenuate the sly Humours in its small Vessels, and discharge a Part of them, and so fit them for a colder Bath, of greater Pressure and Stimulus; not that I am fond of Cold-bathing in old Age, when the Spring of the Fibres is almost worn out, but I mean between the Meridian of Life, and old Age. As to the Season of the Year for using these Waters, after so strict an Examination and Investigation of their Parts, excuse me if I differ from the common Opinion, and prefer early in the Spring, and late in the Autumn: For, if we consider, first, the Luxury of the Age in Eating and Drinking, simple plain Food, that was the delicate Dish of our long-liv'd healthy Ancestors, is no longer relish'd; our Meat must be higher season'd; we cannot dine but upon several Dishes; weak plain Liquors are no longer us'd for Drink; we must have Wine, or, which is worse, (as it is more viscid) strong Ale, or perhaps Brandy and Water. Do not all these heat and inflame

the Body? Secondly, Does not the Water of itself rarefy the Blood, and relax the Vessels? And, thirdly, Are not the Juices of the Body more rarefied? Take they not up more Bulk, and are not the Vessels more relaxed, in Summer than in Winter? Is this then a fit Season to send young People of plethoric and sanguine Constitutions to those Waters? Either they must use them for some time, or not; if the latter, why come they to them? What Design will a mere complimenting Visit of the Waters, and, perhaps, tasting them, or going into them, answer? Sure no valuable End. If they use them for any considerable Time, are they not exposed to the Mercy of Inflammations, Faintness, Palpitations, and Fevers, especially of the hectic Kind? And will not the Waters answer the same Intention, with much greater Safety, from the latter End of *March* to the Middle of *May*, and from the first of *September* to the first of *November*? It is true, the Coldness of the Place may be objected; but is there not a good House, dry warm Rooms, Plenty of Coals, for the most part some Company, and a pleasant dry Country? Where then is the Harm, even in the Middle of Winter, upon urgent and necessary Occasions? Are not the Waters considerably warmer? Does not their Efficacy chiefly depend upon their Warmth, and what causes it? And, the warmer they are, are not they the more efficacious and successful? Nor is the Blood so apt to be rarefied, seeing the Air contain'd in it must be in *aequilibrio* with the external Air. This is not Speculation; I mention it from Experience, having order'd Patients there in *March* in great Frost and Snow, and never observ'd better Success than the Water had upon them all.

As to the Method of using the Waters, except the Body be costive, and the first Passages furred up with gross Humours, I declare myself a profess'd Enemy to what is call'd preparing the Body for them, by strong Purging, which often causes Pain in the Bowels, Windiness, Looseness; and Dejection of the Appetite, the chief thing to be regarded, and kept up, in a Course of Mineral Waters, especially of the warm Kind. Therefore I content myself with simple plain Laxatives, which unload the Intestines without Sickness, Pain, Confinement, or Prostration of Strength or Appetite, as Lenitive Electuary, Rhubarb; Manna, and Cream of Tartar: Or, if the Stomach is loaded with Phlegm, pall'd and relax'd, to prevent this being sent down, and carry'd into the Body with the Water; and there doing a great deal of Mischief, I would give a gentle Vomit, as of the Infusion of Ipecacuanha, or that in Substance to strong Bodies, and neither order Drinking nor Bathing for thirty Hours after at least. Young People, full of Blood, or who have a meagre and quick Pulse, I would order to be blooded before they begin. Such as are liable to the Gout should neither be blooded nor vomited, except there were strong Indications to the contrary; but let them have *Tinctura Sacra*, or *Elixir Salutis*, for a Purge. When they begin to drink the Waters, a Pint before Breakfast, and as much after, is sufficient for the first two or three Days; then half a Pint more for the two Days following, and, at most, three Pints in a Forenoon; for this Water, not being an Evacuant, but an Alternative, must not be thrown into the Body in large Quantities, whereby a great deal more Hurt may be done than the Good we expect. At best, we thereby turn it to an Evacuant by Urine, or receive certain Mischief. As to Diet, if it be seasonable, healthy, and temperate before, I would have no great Change to be made in it, from what was the Person's ordinary way of Life; only, as the Water heats and rarefies, beware of Pepper, Mustard, Onions, Shallots, Horse-radish, and all aromatic and hot Seasoning, and of all inflaming Liquors; Claret, or White-wine, and Water, for Drink, are best; and, when the Design is to relax, I would allow Fish, but no salt Meats, especially those dry'd in the Smoak, nor salt Fish, Goose, nor Duck. Take Breakfast between Eight and Nine o'Clock in the Morning, Dinner at one, and Supper at Seven; let the Supper be light, and easy of Digestion. Go to Bed at Ten, rise at Five or Six in the Morning. Go into the Bath, continue there from seven Minutes to half an Hour, according to the Strength and Case of the Patient. When you come out, if you go not to Bed to sweat, (which is seldom us'd) dry the Body well, and dress presently; and, if the Weather is cold, go to a warm Room, use gentle Exercise, walking about, and drink your Water. Beware of ungovernable Passions, Moroseness, sitting up late, Revelling, and unseasonable Hours; shun violent Exercise and Intemperance; be cheerful. If the Body is costive, drink Tamarind-broth, or take a Clyster. If the Stomach is weak, raw, and belching, take a little bitter aromatic Wine before you begin your Water-drinking; and, when you have drank ten or twelve Days, intermit for four or five Days. Let me add, once for all, that, as this Water is of such a Nature as I have mention'd, so it is not to be trifled with; for, if it be unnecessarily us'd, it will certainly do harm.

But it may, with Justice, be objected, if these Waters are bad for nothing, they are good for nothing. We shall, therefore, give not only their Advantages, but Disadvantages. Their Use, therefore, is unsafe and unadvisable, where there is too great an Impulse

Impulse of the Fluids into the lateral Vessels; as they relax the latter, and make more way for the former, and rarefy them: Nor are they to be meddled with in Tumors from an Impulse of the Fluids, with a Dilatibility of the Solids beyond all Recovery of their natural Tone, and in Swellings from an Extravasation of Blood, Serum, or Lymph, into any of the Cavities of the Body, or Interstices of the Muscles or Membranes; nor are they safe in a natural Fulness of Juices, and a Disposition of the Body to generate Blood too quickly; nor are they advisable in any inward Inflammations, as of the Stomach, Liver, Lungs, Kidneys, or Pleura; nor ought they to be drank in large outward Inflammations of the Glands, since they both increase the Motion and Quantity of the Blood, and dispose it to run more impetuously upon those Parts, whose Spring and Resistance is impaired or lost; nor is it to be liberally us'd in outward Impostumes. They are of no Effect in those Tumors call'd Meliceris, Steatoma, Atheroma, and Talpa. They are also mischievous in Consumptions attended with a rapid Motion of the Blood, and weak pulmonary Vessels, and in too copious Perspiration. Or, in a Word, where-ever strengthening and bracing up the Solids, and thickening and cooling the Fluids, are indicated, these Waters must be refrain'd from, or where the animal Secretions are to be lessen'd.

Hence observe the following Mistakes in the Use of these Waters: First, Does their chief Efficacy depend on their volatile Parts, which only consist of a Steam or Vapour; and are they better adapted to Diseases of the smaller than of the larger Vessels? Then it is an Error to imagine, that all the Business is done by drinking large Quantities of them, and so turning them to Evacuants, at least powerful Diuretics; whereby they are hurry'd out of the Body before they have done their Work, which lies in much smaller Vessels, and requires longer Retention. Secondly, Is Evacuation inconsistent with all the Intentions of the Waters? Then how imprudent are those who use evacuant Medicines along with the Waters, whether Purgatives or Diuretics, which expeditiously carry off the Waters, and, together with them, the thinner Parts of the Blood, out of the larger Vessels; and the Lymph, which is pour'd into the chylöpoetic Organs for diluting the Chyle! But allow they should drink so much more Water in proportion to the Increase of the Drains: In this mending the Matter, and not making it worse? For hereby there is a greater Pressure and Quantity of Water laid upon the Intestines, or Organs destin'd for the Secretion of the Urine, the Fluids in these Glands thinn'd, and their excretory Ducts widen'd and laid more open, and all every way fitted for a larger and freer Vent of the more serous Parts of the Blood, which should dilute the grosser in the smallest Vessels. Hence Obstructions are more riveted there, or at least not removed,

Thirdly, Does the Water heat and rarefy the Blood? Is it then rational to send young Persons thither, especially in the Heat of Summer, whose Blood is capable of Rarefaction, when the Warmth of the Water, by the Presence of its mineral Principle, join'd to the Heat of the Blood, and the hot Season, has relax'd the Solids, and widen'd the Vessels, and the Blood is in its greatest natural Rarefaction? One would think this Caution needless, to such especially as consider the fatal Consequences of a very rarefied State of the Air, by Lightning, to animal Bodies; for the Atmosphere being suddenly rarefy'd by the Flash, the sudden Expansion of the Air in the Blood, to a Balance with this Atmosphere, quickly bursts the Vessels, mingles Solids and Fluids together, as in a Mortification; and the hardest Parts, which give the greatest Resistance to this violent Expansion, are burst into a thousand Pieces, the Spring of the Air being so much superior to the Cohesion of the Parts. Fourthly, Does the Water rarefy the Blood? Then how inconsistent is violent Exercise with their Use, as Dancing and Revelling to unseasonable Hours, strong Bowling in the Heat of the Day, galloping on Horseback, instead of an easy Trot, or an ambling Pace! These violent Exercises heat the Blood too much, and are often of bad Consequences. Fifthly, Is the Design of this Water Relaxation and Dilution? Then how do such promote those Ends, who deal all the while in Drams, Spirits, and Punch, all which contract and strivel up the Solids, as the first two very remarkably coagulate the Fluids! Sixthly, Do the Waters rarefy the Blood, and increase its Bulk and Motion? And is it safe and advisable for those who have a natural Fulness or Superfluity of the Juices, or for such as have naturally a quick Pulse, large Secretions, thin Bodies, and weak Vessels? For once more give me Leave to say, that these Waters are not to be trifled with; since, if their Use is not wanted, and does no Good, they certainly do Mischief; and whoever says the contrary, votes these Waters good for little or nothing; and, if he understands the Waters rightly, may as well advise the Peruvian Bark in continual Fevers, or during the Fit of Intermittents, or Steel Medicines in a Plethora, or Sugar of Lead in a Dropsy or Palsy, or Camphire in the Declination of a hot Fever, which has parched up and dried the Body, and almost worn out the Spring of the Vessels. But, seventhly, Are these Waters warm, and impregnated with a

very volatile penetrating Part, wherein lies their chiefest Efficacy? And is this Principle gone when they are cold? Then they must be drank warm at the Spring to answer any End; for, when they are cold, they only serve instead of common Water, being purer and better than that. Eighthly, Is the Nature of these Waters relaxing and attenuating? Then special Care must be taken, that a suitable Diet, both in Meat and Drink, be observ'd, and that the Patient refrain from every thing that is opposite to their Use, and gave Birth to his Distemper, tho' never so much his Favourite, and seemingly opposite to Nature. Ninthly, Is the chief Design of these Waters Relaxation and Dilution? Then are they improper in Obstructions from a Sickness of the Juices, and a Relaxation of the Vessels, as in Cachexies and Dropsies. Tenthly, But, say some prejudic'd Persons, if you can find out the Nature of this Mineral Spirit, in which you assert the Efficacy of these Waters to consist, why may they not be imitated, and so People sav'd much Labour, and Loss of Time, and Expences? Answer. First, Imitate it with what? Whether with fix'd or volatile Bodies? Where will you furnish me with Matter divided into, and existing in, such small, subtle, incoercible Particles? Or where is the Art that can reduce Mineral Substances to such a volatile, fugitive, Mineral Spirit, a Spirit that cannot be retain'd? A Substance of almost as minute-Parts as those of Light and Heat? A Steam fitted to pass the smallest Crannies in Nature? But, secondly, So exquisite is the Mixture, and so great the Difference between divine and human Compositions, that the former are inimitable. What Anatomist, that knows the Structure of a human Body the best, will undertake to make another like it? Or what Chymist, that can separate the Principles of a Plant to the greatest Exactness, will yet have Assurance to boast of his Capacity so far, as to reunite even the same Parts again, in the same Form and Condition, with a vegetable Life? Even so different are the Compositions of God and Man. Hence we see, that he who made these Bodies and Vessels at first, is best able to judge of their Diameters, and knows best how to prepare Substances suited to their Dimensions and Diseases. Therefore, could we pretend to mimic these Waters, yet the Counterfeit would be so much inferior to the Natural, as a Piece of Painting, tho' never so fine, is to the original Life. *Short's History of Mineral Waters.*

BUXUS, Offic. Ger. 1226: Emac. 1410: J. B. 1. 496. Raii Hist. 2. 1693. Synop. 3. 445. Chab. 38. Mer. Pin. 18. Merc. Bot. 1. 25: Phyt. Brit. 181. *Buxus arborescens*, C. B. Pin. 471: Tourn. Inst. 578. Elem. Bot. 450. Boerh. Ind. A. 2. 172. Rupp. Flor. Jen. 264. *Buxus arbor vulgaris*, Park. Theat. 1428. THE BOX-TREE. Dale.

Box seldom grows to be a Tree of any great Bigness in England; the Wood is hard, solid, and ponderous; of a yellow Colour, cover'd with a whitish Bark. The Leaves are small and roundish, of a firm Texture, and a shining green Colour; it is perennial, keeping always green: The Flowers are small, of a yellowish Colour, each composed of five Leaves. The Fruit is small, roundish, and tricapular, with three Points or Horns on the Top. It grows wild in some Parts of Kent and Surry; as about *Boxhill* near *Darking*. *Miller's Bot. Off.*

The Leaves of the *Box* are bitter, have an ill Smell, and give a faint Red to blue Paper. We obtain from the Wood a little acid Spirit, and a fetid Oil. *Quercetan* esteems this Oil very much for the Epilepsy, the Vapours, and the Tooth-ach. Being rectified, and circulated afterwards with a third Part of good Spirit of Wine, it is very sweetening and aperitive. They give fifteen or twenty Drops of it, mix'd with Sugar or Liquorice-powder. They mix this Oil, unrectified, with melted Butter, to anoint Cancers. A Liniment is made of it, with Oil of St. John's-wort, for the Rheumatism and Gout. *Etmuller*, and several other Authors, maintain, that one may substitute the *Box* in the room of the Guaiacum, Juniper, or Sassafras, and the Roots of Butterbur and Bennet, in the room of the Sarsaparilla. *Martyn's Tournefort.*

Blegny, in his *Zodiacus Medico-Gallicus*, An. 2. tells us, that he knew three Persons, who, from their own Experience, had found, that a large Quantity of tender *Box*-leaves, infused in three Quarters of a Pint of White-wine, proved an infallible Cure for pituitous and stultent Colics, if the strain'd Liquor was drank warm. *Dale*, in his *Pharmacologia*, informs us, that it is at present little used in Medicine; but that, according to *Schrader*, some from the Wood distil an Oil, which is highly narcotic, and which they wonderfully extol in Epilepsies, Tooth-achs, and Rottenness of the Teeth. He also tells us, that *Fernelius* classed the Leaves of the *Box* among the Purgatives. In *Eph. N. C. D.* 2. a. 2. o. 155. we are told, that a Lotion, prepared of a Lixivium in which the Leaves and Branches of *Box* have been boil'd, not only makes the Hairs grow, but also gives them a yellowish Colour. A Decoction of the Flowers of *Box* is by some said to be sudorific; and others inform us, that one Dram of them proves a violent Purge. *Rondelilius*, in *Forest. Obs. Med.* says, he by no means doubts, but that the Shavings of *Box*, in consequence of their sudorific Quality, would cure the *Lues Venerea*; but that they are not used for

B U X

that Purpose, because they excite Head-achs, and are of a fetid Smell, and disagreeable Taste. However, *Amatus Lusitanus* used a Decoction of this Wood, more than once, with wonderful Success. The same Author, *Cent. 3. Cur. 36.* by a Decoction of Box-wood, after all other Medicines had proved ineffectual, in the Space of twenty Days cured an *Hemicrania*, brought on by a Consent of the Parts. A Decoction of the Wood, in Red-wine, has by some been found to do great Service in Tooth-achs arising from cold Defluxions. Besides, a singular anodyne Quality is ascribed to the Wood, for which Reason many recommend Tooth-pickers made of it. The Oil also, distill'd from the Box-wood, is accounted excellent against the Tooth-ach, Fevers, Vertigoes, the Falling-sickness, and the Hæmorrhoids. *Schulzii Prælectiones*, and *Simon Paulli's Quadripartitum Botanicum*. The Wood alone, subjected to Distillation from a Retort in a Sand-heat, yields an acid Spirit; and a fetid empyreumatic Oil, just like those yielded by Guaiac-wood, when treated in a like manner. That this acid Spirit; when rectified, dissolves Coral, and produces other Effects; which prove the Similarity of its Nature to that of penetrating Acids, may be seen in *Boyle's Chymista Scepticus*. If this empyreumatic Oil, which is by some thought to be the *Oleum Heracleum* of *Rulandus*, is put into the Hollow of a carious Tooth, and applied immediately to the Nerves, it removes the Tooth-ach, by burning them, just like Oil of Cloves, or any other acrid and caustic Oils. When mix'd with melted Butter, it is recommended to be used by way of Liniment in Cancers; and, when mix'd with Oil of St. John's Wort, it is used in the same Form in the Rheumatism and Gout. But if it is rectified, and digested for some time, with a third Part of good Spirit of Wine, it affords an anodyne and aperient Medicine for internal Uses, of which fifteen or twenty Drops may be exhibited with Sugar or Liquorice-powder. The Smoak of the kindled Box-wood seems to be justly recommended against the Plague, not so much on account of its highly fetid Smell, which at once induced *Barbaine* to the Affirmative, as because it abounds with an acid Salt, which, when drawn in with the Air, resists that Putrefaction of the Juices, to which, during the Time of the Plague, they are always disposed. It is worth while to inquire into the Origin of the Persuasion of some, that the Virtues of the Box-tree may not only contribute to extinguish the Sense of Venereal Pleasures, but also to banish the Devil himself. All fetid Substances, then, possess a Power of stimulating the Nerves into Motion, removing the disorderly Sallies of the animal Spirits, and consequently of curing those hysteric Indispositions produced by such a Cause. Now, hypochondriac and hysteric Passions are generally attended with surprising spasmodic Motions, by ignorant People ascribed to the Devil, and his Influence on the human Body; but the Box-tree is possess'd of a Quality capable of removing these Disorders, and their concomitant Symptoms. Therefore, say they, it banishes the Devil, whom they as falsely as foolishly suppose to be the immediate Author of these Symptoms.

It is also possible, that this Persuasion of the Power of the Box-wood to banish the Devil may have been owing to a Custom of consecrating its Leaves on *Palm-sunday* in some Countries; where, at that Season, no other Leaves are to be found: Whether it is really so or not, 'tis nevertheless certain, that, from this Circumstance, the Dutch call the Box-tree *Palm-boom*, and its Wood *Palm-bout*. I must not, on this Occasion, forget a Story told by *Levinus Lemnius* in these Words: "I am acquainted, says he, with a certain Priest in our own Country, who has the Misfortune of a weak Judgment, and a whimsical Mind, who exhibited the Ashes of burnt Box-wood, consecrated on *Palm-sunday*, a Ceremony used in the Roman Church, to a young Boy, to be drank in holy Water, performing at the same time a certain ridiculous Exorcism. All this Apparatus, as he told the By-standers, was to remove the Fever, and dislodge the Worms with which the Boy was afflicted. Soon after, indeed, the Fever was carried off; but the Patient unluckily died; upon which I advised my Countryman to beware of the like Practice for the future; since the Leaves of the Box-tree are possess'd of a deleterious Quality, highly prejudicial to the human Constitution, as is obvious from their rank and disagreeable Smell, and their harsh and bitter Taste, so ungrateful to the Palate."

Miller enumerates seven Species of the *Buxus*, of which the

B Y Z

Buxus humilis is possess'd of the same Medicinal Virtues with the *Buxus arborescens*.

BUYO BUYO. The Name of a sort of Pepper, so call'd in the *Philippine Island*. *Ray* calls it *Piper Longum Mo-nardi*.

BYNE, βυνή, Malt, which *Aetius* thus describes.

Barley moisten'd with Water, then suffer'd to germinate, and afterwards dried in a Kiln, with the Shoots upon it, is call'd *Byne*.

BYRETHRUM. An arbitrary Word coin'd by *Forestus*, to express a sort of *Cucupha*, or Cap, prepared with Cephalic Ingredients.

BYRSA, βύρσα. A Skin of Leather, frequently used to spread Plaisters upon.

BYRSODEPSICON, βυρσοδεψικόν, from βύρσα, a Skin, and δεψίω, to curry Leather. *Cælius Aurelianus, Chronic. L. 4. C. 3.* recommends, for those Persons whom he calls *Ventriculosi*, or *Cæliaci*, amongst other Applications to the middle Parts of the Body, Wool sprinkled with *Rutherginarium*, which the *Greeks* call βυρσοδεψικόν, meaning SUMACH, which see.

BYSAUCHEN, βυσάυχην, from βύω, to hide, and αὐχὴν, the Neck. People are properly call'd by this Name, who hide, as it were, their Necks, by elevating their *Scapulæ*, Shoulder-blades. But it is used, in general, to express a Person who labours under a morbid Stiffness of his Neck.

BYSMA. See **BYZEN**.

BYSSUS, in Botany, is the lowest Species of Moss, of which twelve different Sorts are mention'd in the last Edition of *Ray's Synopsis*. See the Explication of Terms under the Article **BOTANY**.

Byssus also signifies the *Pudendum Mulicbre*.

Byssus, moreover, imports a fine sort of Linen, wore by People of Condition among the Antients; but applied to no Medicinal Purposes that I know of. Some are of Opinion, that our fine Cotton, imported from the *East Indies*, is the true *Byssus* of the Antients.

BYSTINI ANTIDOTUS. An Antidote frequently mention'd by *Aretæus*, of much the same Virtues, as it should seem, with the *Mithridate*.

BYTHOS, βυθός, Depth, Profundity. Thus it signifies in that Passage of *Hippocrates* (ἐν παραγγελ.) ἐν βυθῷ ἀτεχνίης ἐόντες " (Physicians) who are in the Depth of Ignorance of the Art." And thus, in several Places of his Epistles, particularly in that from *Democritus* to *Hippocrates*, περὶ φύσεως ἀνθρώπου, or concerning the Nature of Man. (βρύχῳ) ἐν βυθὸν κοιλίης τερεφὴν προτέμπει " (The *Cæso-phagus*) conveys the Aliment to the Depth or Bottom of the Stomach."

BYZEN, βύζην, in *Galen's Exegesis*, is expounded ἀθρόως ἢ πυκνῶς, " in a Heap, in a Croud, or Throng." The Word is used by *Hippocrates, Lib. 1. περὶ γυναικ.* speaking of the Catamenia, χοροῖσι βύζην, " flowing in abundance," or, as it were, thronging for Passage. Again, (*Lib. περὶ ζύου παιδίου*) εἶμα βύζην ἀπὸν κατὰ μῆνα ἕκαστον, " flowing abundantly every Month;" for βύζην, in *Hesychius*, is expounded also by ἰκαρῶς, and δαφιλῶς, " abundantly, plentifully." The Word βύζην is derived from the Verb βύζω, or βύω, which is, to fill by stuffing, to condense. Thus, (*Lib. 1. περὶ γυναικ.*) εἶμα καθαρόν καὶ βιβυσμένον, is a clean Garment of a dense or close Contexture; to which are there opposed τὰ εἶμα ἀραιὰ τε καὶ μαλακά, " thin and soft Woollen Cloaths." And in the same Book, εἶμα πλήρες ἐὼν καὶ βιβυσμένον, is a full well-stuffed Garment.

From βύω also, or βυῶ, which signifies to stop up, to obstruct, fill up, stuff, conflate, comes the Word βύσμα, *Bysma*, in the Expression βύσμασι παρ' ἐλασίων κεραμίων, " the Covers or Stopples of Oil-vessels." These *Bysmata* are order'd to be mix'd with the Sordes, or Filth, collected from Fullers Shops, in order to make a Suffumigation in a particular sort of Hæmorrhage mention'd, *Lib. 2. περὶ γυναικ.* Some take the *Bysma* to be the same with the *Amurea*, which is recommended by *Dioscorides, Lib. 1. Cap. 135.* as useful in an Infusion for Exulcerations of the Anus, Pudenda, and Uterus. The *Bysmata*, before quoted, are probably such things as, by Intrusion, stop, fill, or close up Oil-vessels, as appears from those Expressions of *Hippocrates, (Lib. περὶ ἐπικνήσις)* ὥρα βύσας τὸν δάκτυλον, " thrusting in the Finger," and διαβύσας ἐς τὸ στόμα, " intruding it into the Mouth."

C in the Chymical Alphabet, signifies Salt-petre.
CAA-APIA.

Some People having imagined, that our grey Ipecacuanha was the same with the *Caa-apia* of *Piso*, Mr. *Geoffroy*, as the most natural way of deciding the Question, and removing the Doubt, compares these two Roots with the Descriptions Authors have given of them.

The *Caa-apia Pisonis*, *Hist. Brasiliens.* *Caa-api Brasiliensibus dicta*, G. *Marcgravii*, is a small low Plant, with a Root about a Finger's Breadth or two long, as thick as a Swan's Quill, and sometimes as large as one's little Finger. This Root is knotty, and has its Sides, and its Extremity, furnish'd with Filaments three or four Fingers Breadths in Length. It is of a yellowish-grey Colour externally, but white internally. It is insipid when first put into the Mouth, but afterwards discovers a Taste somewhat acrid and pungent.

From this Root arise three or four Stalks or Pedicles, which are slender, round, and three or four Finger-breadths in Length. Each of these Pedicles bears a Leaf, about a Finger-breadth in Breadth, and three or four Finger-breadths in Length. This Leaf is of a shining-green Colour on the superior, but a little whitish on the inferior Side. It is furnish'd with a Nerve throughout its whole Length, and intersected with small rising Veins on its inferior Side.

The Flower has a Pedicle peculiar to itself, and is round, radiated, and resembling that of the Bellis. It is composed of several Stamina, and bears round Seeds smaller than those of Mustard.

The Root of this Plant is possess'd almost of the same Virtues with the Ipecacuanha, which has induced some to call it by that Name, tho' without any Ground, as *Piso* himself informs us in these Words: "It is, says he, of the same Worth and Efficacy with the *Pecacuanha*, for which Reason it is by some "falsly call'd *Pecacuanha*." It stops Fluxes, and is as good an Emetic as Ipecacuanha, tho' not so strong; for which Reason it may be exhibited in larger Doses. The Dose is from half a Dram to one Dram, in Powder, in Wine, Broth, or any other proper Liquor.

The *Brasilians* bruise the whole Plant, express its Juice, and eat it. This Juice they also use with Success in the Cure of Wounds, made by poison'd Darts, and the Bites of Serpents. Their Method of applying it is to pour it into the Wounds.

Piso adds, that there is another Species of the *Caa-apia*, very like this, excepting that its Leaves are somewhat denticulated about their Edges, and villous as well as the Stalks.

From this Description of the *Caa-apia*, from the Descriptions of the white and brown Ipecacuanhas, which *Piso* and *Markgrave* gives us in their natural History of *Brasil*, and from the express Observation of *Piso*, that some call'd the *Caa-apia* Ipecacuanha, it is obvious, that *Piso* did not intend to describe the *Caa-apia* under the Name of Ipecacuanha. It is much more probable, that what he calls white Ipecacuanha is a Species resembling the grey Kind brought by the *Spaniards* from *Peru*, under the Name of *Bexguilli*; and that the Ipecacuanha Fusca is that Species of brown Ipecacuanha which is at present so common, and comes from *Brasil* by the Way of *Portugal*. *Memoir. de l'Acad. R. des Sciences, A. 1700.*

CAA-ATAYA *Brasiliensibus*, *Marggr.* *Euphrasia affinis*, *Brasiliensis siliquosa*.

From a slender white Root it shoots up a square Stalk a Foot in Height, of a pale Green, slender, geniculated, partly erect, and partly incumbent on the Ground, and taking Root where it touches it at the Joints. At every Joint grow two small Leaves, opposite to one another, of the Size and Shape of those of the *Nummularia*, (Moneywort) or rather of *German*, or *Male Speedwel*, of a pale Green, and serrated at the Edges. At every Pair of Leaves comes forth a very small white Flower, in a manner galeated, which is succeeded by a Pod, of the Size and Figure of the Grain of Oats, which, opening spontaneously, sheds a very small round Seed, of a dark-yellow Colour, and less than the Seed of the smallest Poppy. The Plant has no Smell, but a bitter Taste.

The Plant bruised, and boil'd in Water, and the Decoction drank, purges much, both upwards and downwards.

In its opposite serrated Leaves, its galeated Flowers, and its Seed inclosed in Vessels, it agrees with the *Euphrasia*, whither it might have been referr'd. *Raii Hist. Plant.*

CAACHIRA. See ANIL.

CAACICA *Brasiliensis*, *Herba Colubrina Lusitanis*, *Marggrave*.

From a small Root, and full of Filaments, it sends forth numerous Stalks, near to one another, half a Foot, and some-

times a Foot in Length, of a reddish Green, a little hairy; geniculated at Intervals, of a Finger's Breadth, and having at each Joint two Leaves finely serrated; much of the Size and Shape of those of the *Veronica*, (Male Speedwel) somewhat hairy, green above, and whitish underneath. At the Joints between the Leaves proceed Multitudes of little Flowers, of a green Colour, mix'd with a very little Red, and disposed in the Form of an Umbella. The whole Plant is full of a milky Juice.

The Herb bruised, and applied, is a most effectual Remedy against the Bites of Serpents; and is good also for other Wounds. *Raii Hist.*

CAACO. A Sort of æschynomeneous Plant, which grows in *Brasil*, of which Mr. *Ray* mentions two. The first is the *Caaco Brasiliensibus*, *Herba Viva vulgo*, *Marggrav.* *Æschynomene spinosa* 2. *feu foliolis Acaciæ latioribus, siliquis longis hirsutis*, *Breyn.* *An Mimosa spinosa Fernambucensis*, *Zanoni.* THE SENSITIVE PLANT.

The second is the *Caaco seu Herbæ Vivæ tertia species*, *Margg.* *Æschynomene spinosa tertia, five foliolis Acaciæ angustioribus, siliquis parvis echinatis*, *Breynii.*

I find no Virtues attributed to either of them.

CAÆTIMAY *Brasiliensibus*, *Marggr.* *Senecio Brasiliensis, folio angusto serrato.*

It grows to the Height of three Feet, with a green Stalk, full of a medullary Substance, and, at its first springing up, surrounded with numerous Leaves, four or five Fingers Breadth in Length, narrow, jagged at the Edges, somewhat hairy, as is also the Stalk, and a little hoary, with a soft Down. The upper Part of the Stalk spreads itself into four, five, six, or seven Branches, cover'd with small Leaves, like those of *Hyssop*. The small Branches bear Multitudes of Flowers, like those of *Groundsel*, and ending in Down, which is blown away with the Wind.

The Leaves of this Plant have a hot and acrimonious Taste; and being boiled, or bruised, and the Part rubb'd or wash'd with the same, cure the Itch, where-ever it breaks forth. *Raii Hist. Plant.*

CAAGHIYUYO *Brasiliensibus*, *Marggr.* *Pis.* *Frutex baccifer Brasiliensis, fructu racematim congesto Myrtilli.*

It is an Under-shrub, of the Bigness of the Raspberry-bush. The Stalk is quite woody and hairy; the Leaves grow in Pairs, and always opposite, are hairy, soft to the Touch, slightly serrated, distinguish'd by three eminent Fibres running lengthwise, and interwoven with many small Veins, which run across, are greener above than underneath, and are also set with Tubercles over the whole upper Surface, but underneath are full of little Pits; every Tubercle has a whitish Hair. It bears two, three, four, or five white pentapetalous Flowers, which cluster together, and, falling off, are succeeded by black Berries of the Bigness of Juniper-berries, of a sweet Taste, which are eaten by the Negroes, and yield a Juice much like Myrtle-berries. It grows in several Parts of *Brasil*.

The Leaves pulverized, and sprinkled upon Ulcers proceeding from a hot Cause, are an excellent Cure for them. *Raii Hist. Plant.*

CAAGUA-CUBA *Brasiliensibus*, *Marggrav.* *Arbor baccifera Brasiliensis, floribus umbellatis tilie.*

It is a small Tree, with an upright Trunk, not thick, but without Branches, and having its Top cover'd with numerous large Leaves, a Foot and half in Length, and above a Foot in Breadth; and conspicuous for Fibres, which are soft to the Touch, and hairy, and greener above than underneath. It bears small Flowers, disposed in the Form of an Umbella, resembling the Flowers of the Lime-tree, white, pentapetalous, with a yellow Umbilicus in the Middle, and smelling also like the Flowers of the Lime-tree. The Bark of the Tree is of an Ash Colour, and the Wood brittle: The Fruit is black when ripe, and is eaten by the Birds.

I have met with no physical Virtues ascribed to this Tree. *Raii Hist. Plant.*

CAA-OPIA, *Marggrav.* *Pison.* *Pao de Lacra.* *Lusitanis.* *Arbuscula gummiifera Brasiliensis, fructu cerasti magnitudine gummi, Gutta Jemou, simili.*

It is a Tree of no great Bigness, with a Bark of an Ash Colour, inclining to Red, with brown Striæ, of a tough kind of Wood, and spreading itself into many Branches. The Leaves are solid, of a Green, inclining to reddish in the under Part, and of a paler shining Green above. The Flowers, which form an Umbella, take their Beginning from brown Globules of the Size of Lentils, which, in Process of Time, protrude Flowers composed

composed of five Petals, of a Green inclining to yellow, cover'd on the Inside with a white woolly Substance, and well stock'd with fine yellow Stamina. The Flowers are succeeded by Berries, which are first green, of the Size of a Cherry, round, cover'd with a soft Shell, out of which, being cut, they discharge, by Exsudation, a liquid Substance of an elegant yellow Colour. Within the Bark it contains a white Pulp, composed merely of cylindrical Bodies, placed near, and adhering to one another. At the Extremity of the fructiferous Branches there are always two acuminate brown Leaves, which are compacted, and, as it were, half glued together, in such a manner as to represent the Figure of a Spear or Hunting-pole, and, being cropt from their Pedicle, emit a Saffron-coloured Juice.

It generally flowers in *November* and *December*, and the Fruit is ripe in *January* and *February*.

If an Incision be made in the Bark of this Tree, especially when it begins to blossom, and let alone for a Day or two, it will discharge a Tear of a Saffron-colour, inclining to Red, which coagulates at first into a soft Mass, which hardens by Degrees. It agrees in Colour and Consistence with the *Gutta Gamba*, and dissolves and purges in the same manner; it is a little redder, almost of a Saffron-colour, and gives a Tincture of a little deeper Gold-colour. It is dissolved in Spirit of Wine, and gives it a Saffron-colour'd Tincture.

Formerly they cured the *Impetigo* by rubbing the Part with this Resin, dissolved in Water. Tho' it be not so effectual as *Gutta Gamba*, which *Piso* knows not whether to impute to its natural Want of Virtue, or to the Way of preparing it, yet from half a Dram to a Dram of it, macerated a whole Night in Vinegar of Squills, or Spirit of Wine, and given in Wine, is a strong Purge. It is better taken in Pills than in a liquid Form, because it is very difficult to be dissolved, on account of its Tenacity. *Raii Hist. Plant.*

CAAPERA. A Name for the *PARAIRA BRAVA*; which see.

CAAPOMONGA. The Name of a Plant which grows in *Brasil*. Mr. Ray calls it *Caapomonga Brasiliensis dicta*, *Lusitanis Erva de Vina*, Marggr. *Campanula Brasiliiana, floribus minimis*.

I find no medicinal Virtues attributed to it.

CAAPONGA. The *Brasilian* Name for a sort of Samphire, call'd also *Trifolii Spica Cithmum maritimum non spinosum Brasiliense*, *Pison*. *Perexyl Lusitanis*, *Marcgrav*.

The Leaves and young Stalks of this Plant are boil'd, and pickled with Vinegar, and eat with Flesh or Fish. They are said to excite an Appetite, to provoke Urine, and to open Obstructions of the Viscera.

Piso also mentions another *Caa-ponga*, which is a sort of *Brasilian* Purslane, which is used, like Samphire, for a Pickle.

CAAPO-TIRAGUA *Brasilianis*, *Marcgr*. *Rubia Brasiliensis, floribus verticillatis albis*.

Ray informs us, that this Plant agrees with the *Rubea* in some respects, but is not a true and genuine Species of *Rubia*.

CAAROBA, *Pison*. A Tree very common in *Brasil*.

It is found, in the greatest Perfection, in the richer Soils about *Parnambuc*; but where it grows in less fertile Ground, it scarce exceeds a small Shrub in Bulk. Its Flower, which it sends forth in the Month of *June*, is of an azure-blue Colour, with a purple Cal. Its Seeds, which are ripe in the Month of *September*, are of a blackish Colour. Its Pod, tho' rare, is yet of no Use. It resembles the largest Species of the *Kidney-bean*, and, when ripe, it opens, and remains empty.

Its Leaves are oblong, shaped like a Tongue, and of a faint-green Colour: They have a Nerve running thro' all their Length, with oblique prominent Ribs distributed from it.

They are of a bitter Taste; and, when dried and bruised, are said to be highly proper for Fomentations and Baths. The Medicines prepared of them, when exhibited internally, are of a drying, cleansing, and healing Nature; which *Piso* says, he has happily experienced in the Cure of many chronical and arthritic Disorders, but more particularly in that of the *Lues Venerea*. The Leaves, when triturated, form'd into a Plaster, and applied to Ulcers, are of singular Service, and often remove them entirely; especially if, after due Purgation, a Decoction of them is drank for some Days, and a Diaphoresis promoted. Of the Flowers a Conserve is also prepared for answering the same Intention. *Ray from Piso*.

CAB signifies Gold. *Rulandus*.

CABALA, or CABBALA; call'd also *Kabbala*, *Kabala*, *Cabalia*, *Cabalistica Ars*, *Cabula*, and *Gaballa*.

This is deriv'd from a *Hebrew* Word, which signifies to receive by Tradition. It signifies a Science which consists in the mysterious Explication of the Scripture, either receiv'd by Tradition, communicated by Angels, or learn'd from some imaginary Import of Words or Letters. This is the *Jewish Cabala*; but the Word, from this Original, has been apply'd to any sort of mysterious or magical Knowledge or Explication of Things. Thus the Medicinal or Hermetical *Cabala* is a Science which discovers the most conceal'd Knowledge of Bodies, and

Mysteries of Nature, either by a Communication with incorporeal Beings more knowing than ourselves, or by their mystical Characters. In this *Paracelsus* seems to repose a great deal of Faith.

CABALATOR, or CABULATOR. Nitre. *Rulandus*.

CABALLI, CABALES. I take these to be the incorporeal Beings, mention'd under the Article *CABALA*. *Rulandus* says, they are the astral Bodies of Men, who come to an immature Death before their predestin'd Period, and which are suppos'd to wander about the Earth, as incorporeal Spirits, so long as they were to have liv'd upon it embody'd. As these, probably, only exist in the Imaginations of the Mad or Whimsical, and as the Doctrine which depends upon a Supposition of their Existence is highly extravagant, a farther Account of them would be superfluous.

CABBALLICA *Ars*, καββαλλική, according to the *Lacedemonian* Dialect, for καταβατική, from καταβάλλω, to throw down. This is a Term in Gymnastics, importing, amongst Wrestlers, the Art of foiling, or throwing down an Adversary. *Galen, Lib. ad Thrasymbulum*.

CAPEBI, or CABEB. Scales of Iron. *Rulandus*.

CABELIANUS. A Sort of Fish, of the Cod or Pike Species. *Castellus*.

CABULATOR. See *CABALATOR*.

CABUREIBA PISON. This Mr. Ray thinks the Tree which affords the Balm of *Peru*.

CACAGOGA, χαζαγόγκα. Ointments, which, apply'd to the Fundament, procure Stools. *Paulus Aegineta, Lib. 7. C. 9.* directs to take Alum, mix it with Honey, and boil till they acquire a tawny Colour. With this, says he, anoint the Fundament; it procures a great many Stools, but not without Pain.

CACALIA, Offic. κακαλία, Diosc. *Cacalia quibusdam*, J. B. 3. 569. *Cacalia incano folio*, Ger. Emac. 815. *Raii Hist. 1. 291*. *Cacalia folio rotundo incano*, Park. 1221. *Cacalia foliis crassis hirsutis*, C. B. 198. *Hist. Oxon. 3. 94*. *Tourn. Inst. 452*. *Cacalia sive Leontice veterum quibusdam; aliis vero Tussilaginis species*, Chab. 513. STRANGE COLTSFOOT. Dale.

The Characters are;

It hath a sterculous Flower, consisting of many Petals, divided into four Parts, sitting on the Embryo, and contain'd in an almost cylindrical Empalement. The Embryo afterward becomes a Seed, furnish'd with Down.

It grows by the Sides of Woods, and amongst Shrubs in shady Places.

Cacalia, which some call *Leontice*, has very large white Leaves, from the Middle of which there shoots up a strait white Stalk, bearing a Flower like that of Bryony; it grows on Hills.

The Root macerated in Wine, like *Tragacanth*, and made into an Eclegma, or chew'd by itself, cures Coughs, and Roughness of the *Aspera Arteria*. The Berries, which succeed the falling off of the Flowers, pulveriz'd, and made into a Cerate, and the Face anointed therewith, renders the Skin smooth, and free from Wrinkles. *Dioscorides, Lib. 4. Cap. 123*.

I find no other Virtues attributed to it by the Moderns.

Miller takes Notice of seven Species of this Plant.

CACALIANthemum. A Plant originally brought from the *Canary Islands*, but now common in the Gardens of the Curious. It has been call'd the Cabbage-tree, and *Carnation-tree*, and Dr. *Dillenius* gave it the Name of *Cacalianthemum*, because the Flower and Seeds nearly agree with the *Cacalia*. *Miller* has added a second Species.

The Characters are;

It hath a sterculous Flower, consisting of many Florets, like those of Groundsel; but the Florets are cut into four Segments, whereas those of Groundsel are divided into five Parts: The Cup of the Flower is also slenderer than that of the Groundsel.

The first of them is call'd the

Cacalianthemum folio nerii glauco, Hort. Elth. *Cacalianthemum* with a glaucous Oleander-leaf, commonly call'd the Cabbage-tree.

Cacalianthemum Africanum, ficoidis folio. *African Cacalianthemum*, with a ficoides-leaf.

This Sort was originally imported from the *Cape of Good Hope* into *Holland*.

The Leaves, when broken, emit a strong Scent, somewhat like Turpentine; from whence some Persons have given it the Name of Balm of *Gilead*, tho' very improperly.

It has been commonly known by the Name of *Senecio*. *Miller's Dictionary*.

CACAMOTIC TLANOQUILONI, seu Battata Peregrina, Hernandez. The Cathartic Potato.

This grows spontaneously in the warmer Countries of *America*.

The Roots, taken in the Quantity of two Ounces going to Bed, purge with great Gentleness and Safety. It is said to be sweet, and of a very agreeable Taste, not inferior to our Pears.

CACA-

CACANGELIA, κακαγγελία, and, in *Hippocrates*, κακαγγελίη. This, according to the Derivation, should signify a Message conveying bad News; but, by *Hippocrates*, it is us'd in a different Sense, in his Treatise περὶ τέχνης.

“ There are some, says he, who make it their Business to speak ill of Sciences, without any other View than that of making a Parade of their Knowledge. But, in my Opinion, the Tendency and Use of Knowledge is to discover things of some Use, when found out; or to perfect Discoveries already made; to which those do not in the least contribute, who endeavour to traduce the Discoveries of the Skilful before the Ignorant, without making the least Amendment. These, instead of acquiring the Reputation they aim at, only betray their own Malevolence (κακαγγελίη) and Ignorance.”

This, amongst many other Passages, shews *Hippocrates* to have been a Gentleman, and an honest Man; for Candor is one of the Characteristics of these, as the Malevolence here spoken of is that of a Scoundrel and a Villain.

I must remark, that in all the Copies I have seen of *Hippocrates*, this Word is printed καταγγελίη but *Galen*, in his Exegesis, explains κακαγγελίη by κακολογία and most of the Commentators are of Opinion he has a View to this Passage.

CACANUM, κάκαινον. The Name of a Plant mention'd by *Paulus Aegineta*, in his Catalogue of simple Medicines, L. 7. C. 3. As he ascribes the very same Virtues to the Root, which *Dioscorides* attributes to the *Cacalia*, I suppose he means the same Plant.

CACAO, Offic. Ger. 1364. Emac. 1550. Raii Hist. 2. 1670. Cat. Jam. 134. Hist. 2. 15. Ind. Med. 24. Mont. Exot. 9. *Cacao sive Cacavate*, THE PEAR-BEARING WHOLSOME ALMOND-TREE, Park. Theat. 1642. *Cacao Americae, sive Avellana Mexicana*, J. B. 291. *Amygdalis similis Guatimalensis*, C. B. Pin. 442. *Arbor Cacavera*, Pif. Mant. A. 197. *Cacava Quahuil sive Arbor Cacari cacavifera*, Hern. 79. *Cacava seu Arbor Cacai*, Nieremberg. seu *Arbor cacarifera Mexicanorum*, Jons. Dendr. 124. *Cacava Quahuil, sive Arbor Cacai*, Nieremb. 344. *Arbor cacarifera*, Camel. Syllab. *Cacao America, seu Avellana Mexicana, Cacavata quorundam*, Chab. 19. *Cacao fructus*, Calceol. Mus. 606. Worm. 191. *Arbor cacavifera Americana, cujus fructus folliculo inclusus amygdalorum speciem refert*, Pluk. Almag. 40. Phytog. 268. f. 3. THE CACAO-TREE. Dale.

The Tree which bears the Chocolate-nut, grows to be pretty big, full of large Leaves, standing on long Foot-stalks, broad and round next the Stalk, growing narrower, and ending in a Point, among which grow large five-leaved yellow Flowers, follow'd by a roundish Capsula, or Pod, of the Bigness of a small Melon, but growing narrower at the End, which terminates in a long sharp Papilla. It is pretty tough, of a reddish-brown Colour, and incloses about twenty or thirty of the *Cacao-nuts*, closely compacted together.

This Tree grows in several Parts of the *West-Indies*, as *Martinico*, *Jamaica*, and some others; but the best come from *Caraccas* in *New-Spain*.

The Nuts are of a brownish Colour on the Outside, about as big as an Almond, but rounder and thicker, cover'd with a thin Shell, under which lies the Nut, of a dark reddish-brown Colour, easily crumbling into several Parts, of an oily and somewhat bitterish Taste. Of these, roasted, and separated from the Shells, is made Chocolate, so much us'd of late, and which is made either with, or without, Sugar; some adding Vanelloes, or what else they like. *Miller's Bot. Off.*

The Juice, express'd from the mucilaginous Pulp contain'd in the Husk of the *Cacao-nuts*, is a Substance resembling Cream, of a grateful Taste, and cordial Quality. It is of a detergent Nature, and, when us'd externally, very proper for removing cutaneous Spots and Roughnesses. The Nuts themselves, included in the Husk or Shell, are said to be of so nutritive a Quality, that one Ounce of them contains more real Nourishment than a whole Pound of Beef. But, that we may at once receive the greater Light, with regard to the Truth of this Assertion, and be enabled to form a juster Judgment of the Medicinal Virtues of *Chocolate*, of which this Nut is the Basis, we must inquire what Substances it yields, and of what Principles it seems to be compos'd, when subjected to a Chymical Analysis.

Two Pounds, then, of crude *Cacao* yielded various Liquors, mix'd with an acid and acrid Salt; that is, fourteen Ounces and an half, and half a Dram of Oil, and half an Ounce and ten Grains of a lixivial Salt. *Du Hamel Hist. and Hist. Ac. R. Sc. T. 2. p. 26.* The pinguious and oleous Part of the *Cacao* was, by Mr. *Hornberg*, separated from the rest, in three different Manners: First, by Distillation, he obtain'd from one Pound of *Cacao* three Ounces and a Quarter of Oil, which is much about the fifth Part of a Pound. Secondly, from one Pound of the *Cacao*, made hot, and bruise'd in the ordinary Manner, he obtain'd, by Expression, two Ounces of Oil; and from the Fœces, afterwards, boil'd in Water, he express'd half an Ounce of a like Oil; from the same Fœces, mix'd with common Water, and subjected to Distillation, he obtain'd two

Ounces and an half more; so that the whole Oil, obtained; amounted to five Ounces and an half. Lastly, grinding the *Cacao* with a warm Stone, as when the Chocolate is prepar'd of it, he mix'd thirteen Ounces of this subdu'd Mass with eight Pounds of boiling Water; which, when cold, exhibited no kind of pinguious Substance on its Surface. But after this Matter, put into the Water, was boil'd; and inspissated to the Consistence of a thick Poulitis; then a pinguious Substance was observ'd to float on the Surface; which, being collected by little and little, till no more appear'd, became gradually so thick and tenacious, that it could not commodiously be handled with a Spoon, and was, at last, indurated like Tallow, but retain'd the Smell of the *Cacao*. Six Ounces and somewhat more of this Fat were taken off, and, by Distillation; the Fœces yielded an Ounce and three Drams more; so that from thirteen Ounces of the Mass seven Ounces and three Drams of Oil and Fat were, by this Method, extracted. The Reason of this Difference, according to the Conjecture of Mr. *Hornberg*, is, that the *Cacao* brought from the *Indies*, being much dry'd, and long kept, loses much of that native Humour, from which Part of the Fat is obtain'd. For this Reason, when put into the Retort dry, in the first Analysis, by a simple Distillation, it yields little Oil; but, in the second Operation, the Fat being separated by Expression, and the Fœces being impregnated with warm Water, the pinguious Matter remaining in the Fœces, and which had, by being too much dry'd, lost a Part of its Moisture, recovers it again, and then yields as much Oil by Distillation, as it had before done by Expression. In the third Process, after a large Quantity of Water had been added to the *Cacao*, reduc'd to a kind of Mass, and, after they had boil'd together, on a gentle Fire, for five or six Hours, the pinguious Particles being, by this time, sufficiently impregnated with Moisture, united, and thus, by this Method, more than three times as much Oil was extracted, as was obtain'd by the first Distillation. *Hamel Hist.*

Ray gives us the following Analysis of *Cacao-nuts*: Eight Ounces, says he, of undecorticated *Cacao-nuts*, reduc'd to a Powder, and committed to the Retort, discover'd themselves to be of a Substance so fix'd and difficultly resolvable, that, by a moderate Fire, they yielded nothing but a small Quantity of a certain whitish Liquor, clear and transparent like Water, and which was taken for Phlegm. Then, increasing the Fire to that Degree which is requisite for extracting the Spirit of Vitriol, in the Space of seventeen Hours, there was a Spirit rais'd in the Form of Exhalations, of a milky Whiteness. This Spirit, contrary to the Custom of all others, subsided in Phlegm to the Bottom of the Receiver. At last, upon the Application of the most violent reverberating Heat, a Practice not usual in the Distillation of Vegetables, there ascended an Oil highly red, and, as it were, of a Blood-colour, but, at the same time, pretty transparent. This Oil, when cold, thickens like other Oil, or like Butter of Wax; the Caput Mortuum weighed two Ounces seven Drams, the Spirit two Ounces, the Oil three Ounces and a half. The Spirit was not very hot, but highly penetrating, neither was it ungrateful to the Smell, as those Spirits generally are which are drawn from Blood or Flesh. The Oil is, in like manner, wonderfully pungent and penetrating, before it is separated from the volatile Salt, of which it contains a large Quantity; it is also highly aromatic and cordial. The Spirit soon becomes acid, a Circumstance which sufficiently proves, that it contains a great deal of an acid Principle. From what has been said, 'tis obvious, that the *Cacao* contains a large Quantity of Oil, and this Oil is found, from Experience, to be highly excellent for some Medicinal Purposes, when it is neither alter'd by Distillation, nor spoil'd by Expression, but obtain'd pure, only by boiling in Water. For this Reason the *Oleum e Nucleis Cacao* is one of the Oils in the *Pharmac. Paris*. For obtaining this Oil, the Nuts, when roasted, and clear'd of their Husks and Buds, are levigated upon a Stone with Fire under it, and then boil'd in Water, till the Oil appears on the Surface, which, when the Water is cold, may be gathered from it concreted and thick like Suet, of a brownish Colour, which is chang'd into that of white, by washing it with warm Water whilst liquid. But it seems to be a preferable Method, by which the Oil is extracted from the Nuts by boiling, after having taken off their Husks and Buds, and bruise'd them without roasting them. Sixteen Ounces of the Nuts, thus treated, yielded three Ounces and an half of a very beautiful Butter, of a white Colour, with a Cast of green and yellow. This Butter, as to its Consistence, had a nearer Resemblance to Suet than to Oil; but it had a most fragrant and delicious Taste. *Comm. Lit. for the Year 1737.* From its Consistence it is call'd *Butyrum Cacao*, or Butter of *Cacao*. In *America* this native Oil, when separated and pure, is said to have no Smell, but a pretty grateful Taste. 'Tis also said, that, in Process of Time, it acquires the Consistence of Cheese, which may be kept for a long time without becoming rancid or corrupted, and which may afterwards be liquified with a very gentle Heat. A certain Quantity of this Oil, distill'd from a Cucurbit, plac'd in the Heat of Ashes, yielded an

an unctuous Liquor, which concreted as it drop'd; and seem'd to differ in nothing from the Butter or Oil itself, except in its being somewhat empyreumatic, and depositing in the Bottom of the Receiver a few Drops of a clear Liquor, of a somewhat acid, and highly grateful, Taste. This Butter of Cacao, when not rectify'd, may not only supply the Place of the best Oil of Olives in Food, but 'tis also extol'd as a highly anodyne Medicine, and proper for correcting the acrimonious Humours which prove uneasy to the *Aspera Arteria*. The Method of using it is, to make it up into Troches with Sugar-candy, to be held in the Mouth to melt gradually. Painful Hemorrhoids are also much reliev'd by being anointed with it, when reduc'd to the Form of a Liniment, with pounded Scorix of Lead, or mix'd with Powder of Millepedes, Saccharum Saturni, Pompholyx, and a small Quantity of Laudanum. Some, with Success, apply a Linen Cloth, dipp'd in the Oil, warm, to the Parts affected with arthritic Pains, applying a warm Cloth over it. It is also recommended as a proper Basis for the apoplectic Balsams; and may be substituted, if not prefer'd, to the Oil of Nutmegs. It is also highly proper for anointing Instruments of Steel or Iron, in order to preserve them from Rust. In *America* the Women use it for rendering the Skin smooth and even, without leaving any shining unctuous Gloss behind it. But since, in *Europe*, it is of too firm and hard a Consistence for this Purpose, it may be mix'd with Oil of Ben, or with Oil of sweet Almonds, express'd without Fire. Where the Butter of Cacao, prepar'd of unroasted Nuts, is to be us'd internally, 'tis to be dreaded lest it prove of too hard Digestion, and bring on those Symptoms mention'd in *Comm. Lit.* where we have an Account of a Woman, who, after a *Hæmoptoe*, became phthical. This Patient, in the Space of seven Days and an half, us'd fourteen Drams of the Butter of Cacao, taking scarce a Dram for each Dose, Morning and Evening; but, next Day after the Use of it, she was afflicted with Head-achs, and Loss of Appetite; to which, on the ninth and tenth Days, were added Weaknesses, and Faintings; and, upon injecting a Clyster, the Patient discharg'd indurated Globules, of a greenish Colour, form'd by the Coagulation of this Butter of Cacao.

But the Circumstance which, of all others, renders the Cacao-nut most celebrated, is, its being the Basis of Chocolate, a saccharine Substance, first brought from *America*, into *Europe*, by the *Spaniards*, about the Beginning of the last Century. It is a solid Mass, form'd either into round or square Plates, or made up into Cylinders of a dark-brown Colour. This Substance is friable, and, for the most part, of a grateful aromatic Smell. It is sometimes dissolv'd in Water, sometimes in Wine, and sometimes in Milk; at other times 'tis eaten dry, or mix'd with other Food. It is drank either with a View to nourish, or regale the Stomach, to provoke to Venery, or to answer some Medicinal Intention. The Effects of Chocolate on our Bodies, whether produc'd by its nutritive or stimulating Quality, ought to be determin'd from a joint Consideration of the aromatic Ingredients which enter its Composition, and of the Nature of the Liquor in which it is dissolv'd for Use. Its nutritive Quality is diminish'd by the Addition of a large Quantity of Aromatics, since by that means it becomes too hot. It is also too hot when dissolv'd in Wine, except in those remote Northerly Regions, where the Inhabitants are accustom'd to a hot Regimen. When prepar'd with Milk, it nourishes more than in any other Form; but it seems, at the same time, to load the Stomach too much. By the Addition of an Egg or two, which is the Custom with some People, its nutritive Quality is augmented. Water, therefore, seems, of all others, to be the best Vehicle for Chocolate, since, by its Dilution, it must, of course, promote the Distribution of its nutritive Principles. In the hotter Countries of *Europe*, it is generally prepar'd with Water; and, because it is drank hot, and must, of course, relax the Tone of the Stomach, it is customary to take a Draught of cold Water either before or after it, with a View to assist the Contraction of the Stomach. The *Americans* drink Chocolate, as a Cooler, at their Feasts and Entertainments. Many also of the *Italians* and *Spaniards* drink it, cool'd with Ice or Snow. Chocolate is particularly proper for cold Constitutions, for old People, for such as have their Strength impair'd by continual Watchings, and for those who travel in cold Mornings. It is also, by some, commended in Cases where the Digestion is weak; but the Cacao-nut is of too oily and tenacious a Nature, to be digested by a weak Stomach. For which Reason *Cheyne* thinks, that the Weak and Infirm should not use it, either as Food, or as a Medicine; but rather recommends to them, for common Food, farinaceous Substances, such as Pease, Beans, Millet, Oats, Barley, Rice, Wheat, and other Substances of a like Nature, boil'd in Water or Milk; but he owns, that Chocolate may produce all the salutary Effects of a wholesome Food, in vigorous and robust Constitutions; in which it may also be us'd, as an anodyne Medicine, in Colics, and Nephritic Pains; since, by its Viscidity, it sheaths up and blunts the salt, acrid, and irritating Humours, that

thus, by the lively Impetus of the Viscera, they may be discharg'd thro' proper Passages. *Cheyne's Essay on Health.*

It is confirm'd, by the Experience of many practical Physicians, that, in hectic, scorbutic, and catarrhus Disorders, Atrophies, malignant Itches, and Chin-coughs, Chocolate has prov'd a divine and miraculous Remedy; and that, in these Disorders, when other Remedies have prov'd ineffectual, the Physician has been oblig'd to have recourse to Chocolate, as the last and most effectual Medicine.

According to *Meisner*, in all Disorders arising from an acrid Salt, whether bilious or acid, austere or muriatic, Chocolate may afford the miserable Patients a singular Relief. From this Class of Disorders we do not exclude the *Lues Venerea*, the Gutta Rosacea, the Gout, and wandering arthritic Pains. *H. J. Konig* asserts, that a small Quantity of Chocolate, with a few Aromatics in its Composition, wonderfully relieves the Hypochondriac, and corrects the Acrimony of their Juices, especially if exhibited with the Spices *Diatragacanthi frigid*; and the celebrated *Hoffman*, in his Consultations, asserts that Chocolate, prepar'd with Water, and drank at proper Times, may conduce very much to the Cure of melancholic Disorders, arising from too weak and lax a State of the Nerves, especially if a few Drops of the Essence of Amber are mix'd with it; for he affirms, that he had, from Experience, found it to contain a kind of Oil, highly friendly to the nervous System. But because Chocolate is frequently recommended in Weakness of the Stomach, we must observe, that, according to *Meisner*, "Chocolate is only proper in such Weaknesses of the Stomach as arise from Inanition or Defect, either in Consequence of using such Aliments as afford little Nourishment, like those in *America*, in Consequence of the Constitution and Stomach being too much exhausted by some previous Evacuation, or in Consequence of the Aliments being too speedily dissipated by the excessive Subtlety of the Atmosphere, as generally happens in cold and mountainous Countries, where the Appetite is always keen. But, in such Weaknesses of the Stomach as arise from other Causes, Chocolate is far from being proper." Thus we find Chocolate possessed of two Qualities which it derives from the Cacao-nut; that is, a nutritive Quality, and that by which it corrects the Acrimony of the Juices. Hence 'tis obvious, that the learned *Stubbs* was in the right, when he affirm'd, that well-prepar'd Chocolate was an excellent Diet, not only for such as are scorbutic, afflicted with arthritic Pains, or the Stone; for Women in Labour; and for preventing Convulsions, and expelling the Meconium of Children; but also for hypochondriacal and chronical Disorders. *Philosoph. Transact.* Its alexipharmic or poison-resisting Quality, or rather its oleous Nature, adapted to obtund and sheath up the Spiculæ of Poison, is sufficiently conspicuous from a Case in *Eph. M. C. D.* 1. a. 3. o. 40. D. 3. a. 5. app. p. 102. where, thro' a Mistake, Arsenic was us'd instead of Sugar, for edulcorating roasted Cherries, and, at the same time, for sweetening Chocolate; and it was observed, that those who drank the Chocolate were afflicted less terribly, and struggled longer with the Poison, than those who eat the Cherries. That Chocolate contains a large Quantity of Oil, is also plain from this Circumstance, that it does not keep long before it acquires a kind of Rancidity. *Caldera* is of Opinion, that Chocolate justly deserves a Place among the aperient Medicines; and, indeed, 'tis certain, that every nutritive Substance, whether eatable or drinkable, adds those Degrees of Strength to the Body which are necessary to carry on Perspiration. Besides, Chocolate must be useful for opening Obstructions, on account of those Ingredients, which, being of an aromatic and stimulating Nature, increase the oscillatory Motions of the Vessels, and promote the Circulation of the Juices; so that it must, of course, contribute to carry on the proper Secretions, and excite the various Excretions, in proportion to the Regimen us'd, provided the Patient is not too much accustom'd to drink it; for such Substances as we are not habituated to, only operate as Medicines on our Constitutions.

It would be too tedious to give an Account of the different Methods used by different Nations in preparing the Chocolate. *Benzo*, in his *Nov. Orb.* gives us the Recipe commonly followed by the *Americans*. *Le Fevre* gives us an Account of the Method used by the *Mexicans*; and, in short, different Authors inform us of the various Methods used by different Nations. According to *Herman*, the richer and more opulent Inhabitants of *Spain* prepare it in the following manner:

Take of excorticated clean and roasted Cacao, six Pounds; of Cinnamon, half a Pound; seven Vanilloes, dissolved in Syrup; six or seven Cloves; Meal of *Indian Corn*, half an Ounce; of *Spanish Pepper*, one Dram; of *Arnotto*, in order to give it a reddish Colour, two Drams, dissolved in Rose-water, or Syrup of Roses; of Sugar, a sufficient Quantity, or about three or four Pounds: Beat and mix all together in a Vessel placed over a gentle Fire; stir them constantly, till they are intimately mix'd; reduce to a Mass;

a Mafs; and if you have a Mind, add a proper Quantity of Musk, or of the Effence of Amber.

In *Meifner* we have the Receipt of *Barthol. Marradon*, that celebrated *Spanifh* Physician, which is as follows:

Take feven hundred Cacao Nuts; of the fineft white Sugar, half a Pound; of Cinnamon, two Ounces; of *Mexican* Pepper, fourteen Grains; of Cloves, half an Ounce; of Vanilloes, half a Scruple; or, in their ftead, two Ounces of Anife-feeds; and of Arnotto, the Bulk of a Nut: To thefe fome add a little Orange-flower Water, and one Grain of Musk or Ambergrife.

In the Memoirs of the Royal Academy of Sciences at *Paris* we are told, that Chocolate is prepared of

A Pound of Cacao, roasted after the Hufks are taken off, with an equal Quantity of Sugar, two Drams of Cinnamon, and half a Dram of Vanilloes.

This Compofition, when fubjected to Diffillation, yielded eight Ounces and four Drams of Oil; and what remained after Diffillation yielded two Drams and eight Grains of a lixivial Salt. *Hamel. Hift. Reg. Scienc. Academiae.*

Le Fevre prefers the following Recipe, taken from *Lemery*, to all the other Methods of preparing Chocolate, ufed in *France*.

Take two Pounds of Cacao Nuts decorticated, roasted, and reduced to a Pafte; with thefe mix one Pound and an half of Powder-sugar; to thefe are added a Scruple and an half of Vanilloes, four Cloves, half a Dram of Cinnamon, one Grain of Amber, and half a Grain of Musk, reduced to Powder. *Lemer. Alim.*

At prefent the Pepper and *Indian* Corn are for the moft part rejected by the *Europeans* in making Chocolate; and in *Spain* and *Italy*, that Species, which is prepared without the Vanilloes, is called *Chocolata Samitatis*, becaufe it is thought lefs hot than the other Kinds. In the *American* Iflands belonging to the *French*, the Vanilloes, though there produced in great Plenty, are not ufed in preparing Chocolate. But becaufe many love Chocolate of a pungent Taffe, fome in the room of the Vanilloes fubftitute other acrid Aromatics, fuch as Pepper, Ginger, and others of a like Nature. The moft fimple of all the Methods of preparing Chocolate ufed in *Europe*, is directed in the *Pharmacop. Auguftan.* thus:

Take Cacao Nuts, gently roasted, decorticated, and reduced to a fine Powder; let two Parts of this Powder be reduced to a Pafte, with one Part of white Sugar, and dry'd in a gentle Heat.

Whoever has a mind to inform himfelf more fully of the various Ingredients ufed in preparing Chocolate, let him confult *Meifner*, *Caldera*, *Du-Four*, and *Pifo*. As for the Goodnefs of the Chocolate commonly fold, that is generally thought beft which is intirely diffolved in the Liquor with which it is made, without leaving any Sediment. In *Spain* the Chocolate is thought beft which is pierc'd by Worms, who are faid to be fond of none but what is good. *Reaumur.*

It now remains, that we fay fomething concerning the Method of reducing Chocolate to a proper Liquor for drinking. The moft ordinary manner of doing this is to put boiling Water, or, in its ftead, Milk or Wine, in a proper Veffel; then the Chocolate, being cut down, is added to the Liquor; and, during the boiling, the Mixture is well agitated with a denticulated or notched Piece of Wood, commonly called a *Mill*, 'till it froths; then the frothy Liquor is poured into a Cup or Bowl, and drank warm or tepid. It is alfo a Custom with many to eat toafted Bread or Bifcuit foak'd in it. What remains of the Liquor is, before it is poured into the fecond or third Cups, to be again agitated as before, till at laft the Whole is converted into Froth. Some allow the Chocolate to boil for fome time with the Liquor, before they attempt to raife it into a Froth. But 'tis to be fear'd, that, by this Method, it may lofe too much of the fubtile Aromatic it contains. They who do not think the Chocolate before fufficiently impregnated with Sugar, add of that Ingredient whatever they have a mind. The Proportion of the Chocolate to the Liquor, with regard to Weight, ought, according to *Mundius*, and fome other Authors, to be as one to eight. But the Proportion is always varied, according as the Chocolate is wanted ftrong or weak.

As for the Dofe or Quantity of Chocolate to be drank at a time, it is commonly determined by the Perfon who drinks it. *Colmenero de Ledefma*, a celebrated *Spaniard*, affirms, that between five and fix Ounces of it may be drank, without doing any Injury to the Conftitution. And that larger Quantities are not prejudicial to fuch as are not accuftomed to it, is plain, from daily

Experience, efpecially in Cafes where the Stomach becoming empty requires fresh Supplies. They who drink the grofs Subftance which fubfides to the Bottom, imagining it to be the moft nutritive Part of the Chocolate, are grofsly miftaken, and by that Practice confiderably injure their Health; fince, according to the laft quoted Author, it is only the terreftrial Part of the *Cacao*, which, by creating Obftructions, difpofes to melancholic Diforders. The Dofe or Quantity muft alfo be confiderably varied, according to the Strength or Weaknefs of the Chocolate, and according as it is made with Milk or Wine. A Man in perfect Health may drink as much as he has an Appetite for, provided he finds himfelf refrefh'd, and his Stomach not overloaded by it. But he ought to remain in a State of Reft for half an Hour, or an Hour, after he has drank it, left Concoction and Digeffion fhould be interrupted, or irregularly carried on. He ought alfo to abftain from Food for fome time after he has drank Chocolate, left by a contrary Practice he fhould injure his Stomach; for Chocolate is itfelf very good Matter of Nourifhment. For this Reason the moft proper Time for ufig it is when the Concoction is finifh'd, whether in the Morning, or in the Afternoon. And fince in a hot Air the Powers of Digeffion are fainter and more languid than in a cold State of the Atmosphere, 'tis hence obvious, that Chocolate ought to be ufed in fmall Quantities, and lefs frequently, in Summer than in Winter, as *Colmenero* has juftly advifed; though he adds, "That in *America*, and even in *Spain*, Chocolate may be drank at all times; and that this is owing, firft, to Cuftom; and, fecondly, to the exceffive Heat of thefe Countries, by which, in Conjunction with an abundant Humidity, the Pores of the Inhabitants are open'd, and a great Diffipation of the Subftance of the Body is caufed; fo that Chocolate may there be fafely drank, not only in the Morning, but at any Hour of the Day. Now, fince by the intense Heat the natural Heat of the Body is diffipated; and fince the Heat of the Stomach, and other Vifcera, retires to the Circumference of the Body, the Stomach muft of courfe be rendered confiderably weakened; fo that the *Americans* and *Spaniards* find themfelves refrefh'd, and the Tone of their Stomachs reftor'd, not only by Chocolate, but alfo by pure and unadulterated Wine." The aromatic Ingredients of the Chocolate recruit the languid Stomach; as alfo generous Wine, by reftoring a due Degree of Contraction to the nervous Syftem, and raifing the Spirits to a proper Motion. But left, in Confequence of a Diffipation of the aqueous Liquids, the parched Veffels of the Body fhould receive a Heat which would farther inflame the Humours, to the no fmall Detriment of Health, *Caldera* advifes, "That if, during an exceffive Heat, the Perfon who intends to drink Chocolate is thirfty, he fhould a little before take a fmall Draught of cold Water, left the Chocolate produce a fresh Degree of Thirft, and render it more intense than it was before. But any Liquor drank after Chocolate generally produces the moft terrible Symptoms, whether it be Wine or Water. I myfelf faw a Vertigo produc'd by this imprudent Practice in a Citizen of *Seville*; the Colic in another; and a Privation of Voice in many others." Physicians are not fully agreed, whether without any Prejudice to Health cold Chocolate may be ufed as a Cooler. *Gage* affirms, "That it is fo exceffively cold, that few can ufe it fafely; fince it excites Pains of the Stomach, and other Diforders, efpecially in Women." According to *Caldera*, when this Liquor is cooled with Ice or Snow, it is equally virulent and dangerous with cold Poifons: For, fays he, when a fudden Cold feizes the Organs of Refpiration, it affects them with fuch a Numbnefs and Torpor, that they can no longer perform their proper Motions; and this Motion ceafing, a fudden Death enfues. Now 'tis evident, not only from Reason, but from daily Experience, that the fame fatal Confequences muft be produced, when an intense and preternatural Cold has feiz'd the Stomach, the Liver, the Uterus, and the extreme Orifices of the Veins; becaufe fuch a Cold, by obftructing thefe Orifices, puts a Stop to the Circulation of the Blood, which in this Cafe is fo coagulated in the Extremities of the Veins, that the Functiions of Life ceafe, Syncope enfues, and the Patient dies fuddenly, without any apparent Caufe. To fuch as object, that all who daily drink Chocolate thus cool'd do not die fuddenly, *Caldera* makes this Reply, "That neither do all who are feiz'd with a Plague die of it; becaufe, though the *Fomes* of this Difafe is an Agent of wonderful Force and Efficacy, yet it only operates on Subjects properly difpofed for yielding to its Virulence; fo that every one ought to take care of himfelf, and become cautious, by an Obfervation of the Fates of others. *Colmenero*, according to *Meifner*, is of Opinion, that Chocolate drank in the Dog-days by People of hot Conftitutions, and fuch as are afflicted with a Weaknefs and Debility of the Stomach, is moft conducive to Health, when made with Endive-water. But fince in Diffillation what riles in the Alembic from the Endive does not partake of its faponaceous Qualities, and fince that Plant is found to contain no aromatic and volatile Parts, I fee no Reason why Endive-water fhould be more proper for this Purpofe than pure com-

mon Water, or distil'd Water. Corroborating and stomatic Virtues are in vain sought for in Endive-water; but these may much more probably be found in a little Wine added to the Chocolate, if no Circumstances concur to contraindicate such a Practice. When Chocolate is prescribed as a Medicine, the Physician must determine the Quantity, and fix the proper Seasons of Exhibition. Such as are become weak, in Consequence of Inanition, may judge of the Quantity from the Sense of Refreshment they feel; but at the same time they ought to use it more sparingly than those who are vigorous and robust.

Having thus considered Chocolate as a Drink, we now come to view it in another Light; that is, when used in preparing Victuals. Many, then, add powder'd Chocolate to certain Foods, as an Aromatic, for the sake of a more grateful Smell; and delicious Taste. They also mix it with Broths; and other Dishes. But 'tis obvious, that the more of it is used for these Purposes, the Food becomes not only more fragrant to the Smell, and grateful to the Taste, but also more nutritive. Others, especially on a Journey, in the Morning, eat Chocolate dry, without any foreign Mixture; this supplies the Place of an aromatic Confection, and defends them from the Injuries of the cold and damp Air; since, by stimulating the Juices into a somewhat brisker Motion, it in some measure prevents those unlucky Consequences which are generally produced by an obstructed Perspiration. Besides, as Travellers are sometimes reduced to Straights for want of Food, this Defect may, in some measure, be supply'd by Chocolate; of which are also made Sweetmeats, and other Delicacies, very grateful to the Taste, whose Virtues may be judg'd of from what has already been said of Chocolate, and a Consideration of the other Substances which enter their Compositions. The *Royal Chocolate*, for Instance, prepar'd for *Uladislaus* the Fourth, King of *Poland*, and preserved among the *Arcana Cuëffelliana*, is made thus:

Take four Ounces of *Indian Chocolate*, reduc'd to a Powder, and pass'd through a Sierce; of powder'd *Canary Sugar*, one Pound; twelve sweet Almonds decorticated, and well beat in a Marble Mortar: Let these be sufficiently mix'd, incorporated with Whites of Eggs, and by a long Agitation converted into Foam; then add between half a Dram and a Dram of *Ambergrise*, triturated with *Canary Sugar*; and of Musk dissolved in Sugar of *Roses*, half a Scruple. Reduce the Whole into a Mass, of which form small Cakes an Inch square, to be laid upon Paper, and dry'd over a small Iron Furnace.

The Rob of Chocolate, prepared with Saffron and Oil of Almonds, is by *Bruckman* recommended as a Specific in Coughs. The *Confectia Pacifica de Succolata Inda*, in *Mynsicht*, is an Electuary, which, besides Chocolate, consists of a great Number of Aromatics, and other stimulating and nutritive Ingredients. It is recommended as a Secret of wonderful Efficacy in the Cure of Venereal Impotence, if, after proper Evacuations, a Piece of the Bulk of a Chestnut is daily used.

I must here also observe, that 'tis customary for some to mix purgative, antifebrile, and other Medicines, with Chocolate, in order to render them more grateful and agreeable to the Patient; but whether, and in what Cases, it is a proper Vehicle for other Medicines, must be judg'd from what has already been said concerning it.

From what has been advanc'd, we must be guided in our Judgment, whether Chocolate is proper for all those to whose Palates it is agreeable. When moderately used, it seems to contribute to the Health of those who are in no Danger of having their Juices stimulated into too brisk a Motion, or their Constitutions overheated by the Use of Aromatics; as also of those whose Stomachs are able to concoct and subdue the pinguious and tenacious Substance of the Cacao Nut. Hence 'tis obvious, that those People must abstain from the frequent and immoderate Use of it, who are in the full Vigour of Youth; whose Juices are easily put into preternatural Commotions; who have spare dry Constitutions; and whose *Primæ Viæ*, in consequence of having lost their Tone, are unfit for a due Concoction of the Aliments. The Expressions then of *Piperus*, *Corall. ad Myns.* where he calls Chocolate a *Panacea*, and an universal Medicine; and those of *Caldera*, when he asserts, that, like the Apples of the Tree of Life, it preserves from Death, and the Infirmities of Age, are evidently hyperbolic and extravagant; since by one Medicine many Diseases may be remov'd, but no one is found capable of eradicating all the Disorders to which Mankind is subject, as has been demonstrated by the incomparable *Boerhaave*. Lest this should appear a random Assertion concerning Chocolate, I shall, from *Caldera*, who bestows the highest Encomiums upon it, enumerate the several Cases in which the Use, and much more the Abuse, of it is to be avoided. "Chocolate," says he, "is prejudicial to all those who labour under Fevers, or any other acute Disorders; since in these it is converted into Bile. It is also hurtful to the Stomach, when disordered with Crudities, in Consequence of Indigestion. It is highly improper in all Diarrheas, especially those of the bilious Kind; though it sometimes proves serviceable in Lienteries, by promoting the Digestion of the Aliments. It is hurtful after Dinner and Supper, especially after Feasting in a luxurious manner. Besides, Chocolate is attended with this Inconvenience, that it carries the crude and unconcocted Chyle along with it to the Blood-vessels, which, if it there becomes putrid, lays a Foundation for the most terrible Disorders; and either creates new, or augments old Obstructions, before too obstinate to be consistent with a State of Health." Then subjoining some things relative to the bad Consequences arising from the Abuse of Chocolate, he adds these Words: "If it is used in larger Quantities, or more frequently than is consistent with preserving the native Heat of the Stomach; it in this Case creates a great deal of Trouble to the strongest and most vigorous Digestion. The habitual Drinking of it proves a Burden to the Stomach, when already full, especially when it is drank with a View rather to provoke, than to remove Hunger: For by such a Practice, Paleness of Colour is produced, and Crudities are generated, which bring on a Tremor of the Nerves, and an extreme Leanness. By this Custom the Belly is distended, the Countenance discoloured; and sometimes Vertigoes, Head-achs; creeping Pains of the Brain, and perhaps long-continued Fevers, and insuperable varicose Obstructions, are form'd. From this Cause, and the various Crudities inseparable from it, arise hypochondriac Melancholy, and an incredible Complication of Disorders. If, says *Baglivi*, any one, especially of a sanguine and hot Constitution, drinks Chocolate immoderately, since it inspissates the Blood, and renders it unfit for Circulation, probably in Consequence of the viscid and tenacious Nature of the Cacao; it produces Inflammations of the Viscera, long Mesenteric Fevers, and Apoplexies; the Frequency of which is perhaps owing to the too liberal Use of Chocolate; which too much inspissates the Blood; for which Reason the Drinkers of it become excessively fat, as I have observed in a great many Instances."

According to *Meisner*, "Chocolate not only generates Obstructions in those who drink it to Excess, but also when used moderately in every Constitution previously disposed to them by the lacteal Vessels being too small, depressed, or stuffed with a viscid Humour; since, in these, the terrestrial Parts of the Chocolate stop, and either form or augment Obstructions. For this Reason young Girls labouring under a *Chlorosis*, and all others subject to Obstructions, ought to abstain from it." For this Reason also Mr. *Jussieu* disapproves of its being used by Students, since its oleous and pinguious Substance being of difficult Digestion, disposes to Obstructions of the Viscera. He also observes, that Colics, Suffocations, and intense hæmorrhoidal Pains, are produced by it.

Hoffman affirms, that the more of it is drank by hypochondriacal Patients, the greater Injury they sustain; since Eructations, Loss of Appetite, Pains and Uneasiness of the *Præcordia*, are produced by the Inflation and Distention of the Stomach occasioned by it; for the strong Acid with which the *Primæ Viæ* of the Hypochondriac always abound, meeting with the earthy and oleous Parts of the Chocolate, produces a tough, viscid Mass, which, adhering strongly to the Foldings of the Stomach and Duodenum, lays a Foundation for the above-mentioned Disorders. In this Case I have observ'd, that a gentle Emetic has afforded present Relief, restor'd the Strength, and eas'd the Patient, by bringing up a large Quantity of a blackish fordid Matter, which had been generating for some time. This happens most readily in Cases where the Tone of the Stomach is lost, and the Patient is costive. Such as indulge themselves to Excess in drinking Chocolate, should according to *König*, take care, lest, like King *William* the Third, as appears from the History of his Disease, by an Accumulation of Viscidities, they destroy the Tone of the *Primæ Viæ*, and rashly bring on a Flux. That drinking Chocolate to Excess also contributes very much to the Formation of Stones, especially in the Gall-bladder, has been attested by the Observations of some of the best practical Physicians. Thus at *Paris*, according to *Carolus Sponius*, the Body of a certain Man who indulg'd too liberally the Use of Chocolate, being laid open, in the Gall-bladder were found above twenty small Stones, which, according to *Meisner*, were justly ascrib'd to his immoderate Use of Chocolate. On account of the large Quantity of Sugar which enters the Composition of Chocolate, its Use, and much more its Abuse, ought to be shun'd by Women labouring under uterine Disorders, and by those who are subject to hypochondriacal Flatulencies; not so much because the viscid and tenacious Humours, lodg'd in the *Primæ Viæ*, and which are the immediate Matter of hypochondriacal Obstructions, are increas'd by the Sugar, as because the Sugar, meeting with a peccant Acid, increases the troublesome Flatulencies. The Disadvantages arising from the Abuse of Chocolate, consider'd as made up of warm Water, are abundantly plain to every one who will allow himself to reflect, that the

the too frequent Use of warm Water relaxes the Organs of Digestion, and all the Solids in general, and must, consequently, be pernicious.

'Tis much disputed, whether a Composition resembling Chocolate may not be made in *Europe*, without the Assistance of *Cacao*. Some maintain the Affirmative, since, in the *European* Climates, Vegetables are produc'd of highly nutritive Qualities, which is the principal Property of the *Cacao*, and which, being reduc'd to Powder, and mix'd with other Substances, may be form'd into a Mass, and made up like Chocolate. Besides, the *European* Vegetables, among many others, have this remarkable Advantage above the *Cacao*, that they are less heavy and burdensome to the Stomach. *Grew* expressly affirms, that Almonds, well triturated, and sufficiently mix'd with a due Proportion of Sugar and Aromatics, make a Mass as pleasant to the Palate as the finest *Chocolate*; concerning which Composition *Valentini* affirms, "That, in *Batavia*, he knew a Landlord who sold no other kind of Chocolate than what was prepar'd after this manner." *Rosinus Lentilius*, when speaking on this Subject, has these Words: "*Blancard* orders a Substance, resembling Chocolate, to be made of our own Almonds, sufficiently triturated, with an Addition of Cinamon, Cloves, Anise, Sugar, and a small Quantity of the Balsam of *Peru*. This Composition he extols very much, and affirms that its Taste is not greatly different from that of Chocolate; nor do I in the least doubt, but a most elegant Composition; possess'd of the same Virtue with Chocolate, may be prepar'd in the following manner.

"Take one Pound of excocticated sweet Almonds; Pine-nuts well clean'd; and fresh Pistachio-nuts, each half a Pound; the best Cinamon; half an Ounce; Cloves, two Drams; choice Manna; four Ounces; of Sugar, a sufficient Quantity. Make into a Confection like Chocolate, to which you may, if you please, add a little Musk and Amber. This Confection drank in Milk, with the Yolk of an Egg, is a celebrated Analeptic; the Confectio Alkermes may also be added to it for answering particular Intentions." *Eph. N. C. D.* 3. a. 5. app.

"In like manner, according to *Bruckmann*, the Chocolate of *Brunswick* is prepar'd of that sort of Ale called *Mum*, with some Yolks of Eggs, and Aromatics; and this is certainly no despicable Liquor. Besides, a Drink resembling Chocolate is prepar'd of the fine Wheat-flour of *Halle*, roasted and mix'd with Yolks of Eggs, Sugar, Cinamon, and Milk."

The learned *David Friedel*, in a Treatise which he calls, *Medicinische Bedenken*, prefers to Chocolate a Liquor prepar'd of equal Quantities of bitter and sweet Almonds decocted, and bruised with Sugar and Aromatics. To these must be added a proper Quantity of warm Milk. Or thus:

Take of sweet and bitter Almonds, each an Ounce; after having roasted them in an Iron Pan till they have assum'd a brownish Colour, and wip'd them with a Linen Cloth, bruise them in a Mortar, and with a Spatula mix them with four Measures of boiling Milk, and to this Mixture add the Yolk of one or two Eggs, broken in a little cold Milk; and, last of all, add a little Cloves, Cinamon and Sugar.

CACAOTETL. An *Indian* Stone, otherwise called *Lapis corvinus*, which when heated, is said to give a Crack like Thunder.

CACATORIA FEBRIS, a Name given by *F. Sylvius* to a kind of intermittent Fever, attended with copious Stools. *Castellus*.

CACAVI, Monard. *five Cazabi*, Clus. in *French*, *Cassave*, or *Pain de Madagascar*, is a kind of Bread which the *Indians* make of the Root of a Plant called *Yuca*. *Caspar Bauhine* calls it the *Manihot* of the *Indians*, or the *Yuca* with hempen Leaves; and *John Bauhine*, the *Manihot Theveti*, *Yuca*, & *Cassavi*; in *French* they call it *Manioc*, or *Manioque*. It is a Shrub which grows to the Height of five or six Feet; the Stalk is woody, wreathed, abounding with Joints and Bunches, brittle, and full of Pith. The Leaves are of the Breadth of a Man's Hand, divided each into seven or eight Parts, always green, and resembling the Leaves of Hemp; the Flowers are monopetalous and Bell-shap'd, near an Inch in Diameter, and indented with five deep Jags. The Pointal in the Middle becomes a Fruit almost round, and nearly as big as a Hazel-nut; it is composed of three Capsules, or oblong Cells join'd together, which inclose each a Stone or oblong Seed, a little bigger than the Kernel of a Pine-apple. The Root is of the Size and Figure of a large Turnep, of a dark Colour without, and white within. This Plant is cultivated in several Countries of *America*, where they set it in Furrows; it is very fruitful, but its Virtues are very different

according to the Climates where it is produc'd. Thus what grows on the Continent is wholesome, and good to eat raw or dress'd; but that of *St. Dominica*, *Cuba*, *Hayri*, and other Isles, is very pernicious, and a violent and speedy Poison, if it be eaten raw; and yet it is of this last that they make the Bread called *Cacavi*, or *Cassave*, in Manner following.

They peel the Roots of the *Yuca*, rasp them, and, putting them into Bags made of the Leaves of the Palm-tree, press out the Juice. After this, they take the Dregs, or pressed Matter, and fry it in a Pan over a small Fire, tossing and turning it from one Side to another, that it may thicken. When it is sufficiently dress'd, they make it into thin Cakes, which they dry in the Sun, or over a Fire; and this is the Bread called *Cassave*, which is very nourishing, and, when it is dry, will keep as well as Biscuit, without corrupting. The *Savages* of the *Antilles*, and all the Inhabitants of the *West-Indies*, feed on it.

The Use of this Bread contracts the Gullet by its Asperity, and causes a Strangulation, if care be not taken to steep it in Broth or Water, or mix it with other Aliments: They who have not taken that Precaution, and are willing to eat it dry, ought always to have a Bottle of Water at Hand, to moisten every Mouthful they take.

The expressed Juice of this Root would kill any Animal which should swallow it crude; but if it be boiled to the Consumption of half, and suffer'd to cool, it will be converted into a sour Liquor, of the Taste, Use, and Qualities of Vinegar; being inspissated to a *Sapa* over the Fire, it becomes sweet, and serves the *Indians* instead of Honey.

The *Yuca* Root of the Islands, in order to produce the different Effects before-mention'd, must contain an acrimonious and corrosive volatile Salt, which is dissipated by Boiling, so that nothing remaining but a fixed Salt confounded and entangled with the Oil, it has only Strength enough to make an Acid like Vinegar; and even that Acidity is for the most part destroy'd by Evaporation, and inspissating the Liquor to a *Sapa*, because the Oil, being then much more collected together, straightly binds and encompasses the Salts, and hinders them from making any other Impression upon the Nerves of the Tongue, than a sort of Titillation called Sweetness.

The Juice of the *Roucou* is said to be a Counter-poison to the *Manioque*. *Lemery des Drogues*.

CACCIONDE. The Name of a Pill, which has for its Basis the *Terra Japonica*, or *Catechu*, and is commended by *Baglivi* against a Dysentery. *Castellus*.

CACEDONIUS Tartarum, is peccant Matter in the human Body, generated from Separations by the secretive Faculty, which are not immediately succeeded by the Operation of the expulsive Faculty. *Rulandus*.

CACHECTICUS. One who labours under a *Cachexia*.

CACHEXIA, καχεξία, from κακός, ill or bad, and ἐξίς, a Habit. A Cachexy, that is, an universal bad Habit of Body, proceeding from a Defect in Nutrition, which must arise, either from a Depravation of the nutritious Juices; a Defect in the Vessels which ought to receive these Juices; or a Deficiency in that Action of the Animal Oeconomy, by which a Part of the circulating Juices is apply'd to the Solids for their Nutrition.

The nutritious Juices are deprav'd by Aliments which are superior to the Powers of Digestion, that is, which cannot be digested, and assimilated by the proper Organs. Of this Sort are all crude, farinaceous, and leguminous Vegetables, which on a weak Stomach are subject to form a kind of tenacious Paste. Add to these, all Sorts of Food, which are hard, fibrous, fat, acrid, aqueous, and viscid. Among these may justly be reckon'd some indigestible Substances, which deprav'd Appetites sometimes covet, as Cinders, Chalk, Sand, or Lime.

It must, however, be remark'd, that the Aliments above-mention'd will not be subject to induce a Cachexy, provided the Organs of Digestion are sufficiently strong, and proportional Exercise is used by the Person who takes them. Hence other Causes of the Depravation of the nutritious Juices must be join'd to the preceding; as a Deficiency with respect to Animal Motion or Exercise, and a Debility of the digestive Organs; tho' a too great Tension thereof may have the same Effects, if sufficient to interfere with the Solution and Assimilation of the Aliment. If the general Mass of Blood also happens to be vitiated extremely in any manner whatever, the nutritious Juices must in Proportion be deprav'd. These Defects in the Organs of Digestion are brought about in various manners; as by all profuse Secretions of what kind soever, as violent Vomitings, Diarrhoeas, Dysenteries, or Hæmorrhages; by a scirrhus Disorder of any of the Viscera; or by a Retention of something in the Body which ought to have been excreted.

It is evident, that these Causes united act either by diminishing the Solids, or by distending them with Fluids not adapted to circulate thro' them. Hence arise two Sorts of Diseases, that is, a Consumption, and what is usually called a *Leucophlegmatia*, or an *Anasarca*.

According

According to the different Colour, Bulk, Tenacity, Acrimony, and Fluidity of the stagnating Liquids, various Appearances arise, which may be esteem'd Symptoms of a Cachexy. Thus the Skin appears white, pale, yellow, livid, red, green, black, or tawny; the Patient perceives a Sensation of Gravity; Tumors arise under the Eyes, and affect the more thin Parts of the Body. Add to these, Flatulencies, œdematous Tumors of the Parts remote from the Heart; Palpitations of the Heart and Arteries, which are augmented by the least Motion; crude and thin Urine; spontaneous, and evidently watery Sweats; all which are succeeded by Emaciation, or a *Leucophlegmatia*, and Dropsy.

No universal Defect of the Vessels which ought to receive good nutritious Juices can be assign'd; but their too great Contraction or Laxity, and the Consequences thereof, may be admitted as Causes of these Defects.

There is a Deficiency in that Action of the Animal Economy, by which a Part of the Juices is applied to the Solids, whenever the Force of the Circulation is either too languid, or too violent.

From what has been said, a Cachexy may be easily distinguish'd. And as to the Consequences thereof, they may be foreseen by carefully considering the Cause, Standing, Effects, and Degrees of the Disorder.

To these also the Method of Cure must be carefully adapted; for it is evident, that a Mitigation, and moderate Inspissation, of the too acrid and too fluid Juices are sometimes requir'd; and, in other Cases, the tenacious and adhering Juices must be dissolv'd, and render'd fluid. And as a Dissolution, and an Inspissation, of the Juices may be induc'd by various Causes, it will be necessary to vary the Medicines, and the Manner of applying them, as the different Causes shall determine.

But the principal Rules to be observ'd in the Cure are,

First, To administer such Aliment as approaches nearly to the Nature of the healthful Fluids of the Body, which are easily digestible; which are in their Nature opposite to the Cause of the Disorder; and which are agreeable to the Patient.

Secondly, To promote the Digestion of such Aliments, by seasoning them with proper Aromatics; by drinking proper Quantities of generous Wine; and by Exercise and Air.

Thirdly, To dispose the Organs of Digestion to perform their Duties, by proper gentle Digestives, Vomits, Purges, and Corroborants.

Fourthly, As soon as the Passages are relax'd, and the morbid Matter is attenuated, to promote its Expulsion, by attenuating Diuretics and Sudorifics.

Lastly, To complete the Cure by Chalybeates, alkaline and saponaceous Substances, together with Walking, Riding, or other proper Exercises, Frictions, and Baths.

The Cause however of the Distemper only can determine the Choice of all these, and the Manner of applying them.

When a Cachectic Consumption arises from too great an Acrimony of the Juices, the particular Species of Acrimony must, if possible, be discover'd.

First, By investigating the Cause of the Cachexy.

Secondly, By examining into the Nature of the Disease, and the Constitution of the Patient.

Thirdly, By the Symptoms.

Fourthly, By the Excretions.

And, when the Nature of the prevailing Acrimony is known, it must be corrected by Substances of a contrary Nature. *Boerb. Aph.* See *ALCALI* and *ACIDUM*.

This Account, which *Boerhaave* gives of a Cachexy, is very distinct, and has the Appearance of being just. But for the farther Illustration of the Subject, I shall explain how I apprehend that a Cachexy may be, and generally is, produc'd.

Suppose then, a Person of any Constitution whatever has his Stomach and Organs of Digestion impair'd by any Accident; and that this Person takes one or more hearty Meals of any Aliment which is superior to the Force of the digestive Organs; and that moreover, he uses little or no Exercise. Upon this Occasion it is not likely, that the Aliment should be digested and assimilated, so as to produce good Blood; but in proportion, as the Aliment is more or less dissolv'd, the partially dissolv'd Portions will stagnate in the first, or more remote Series of Vessels, that is, in the larger or smaller Vessels; and will cause various Disorders, according to the Uses and Importance of the Parts which they obstruct.

Suppose the Aliment so little dissolv'd, that the largest Particles which the Lacteals can possibly admit, are by these convey'd to the Receptacle of the Chyle, and from thence to the Mass of Blood, with which circulating till they arrive at the Lungs, they either pass not at all, or with Difficulty, thro' the minute Vessels of that Organ, on account of their Bulk: Hence Difficulty of Breathing, and Palpitations, arise. And as the Blood should be farther elaborated, and receive its red Colour in the Lungs, this Impediment will in some Degree prevent both: Hence the Blood will be pale, and the Particles of which it consists, will not be so perfectly mix'd and united

together, as to form a Fluid adapted to the Exigencies of the Animal Economy. For this Reason the watery Particles readily separate from the rest, and loiter, or stagnate in different Parts, where they cause soft Tumors, as under the Eyes, and in the Parts remote from the Heart. As these large Particles must, moreover, stagnate in the Glands, and obstruct them, the Secretions of their respective Fluids must be impair'd. For this Reason many of the aqueous Particles, which should either be separated for Expulsion, or apply'd to particular Uses, are retain'd in the Mass of Blood; the Bile also, a Fluid of the utmost Importance in Digestion, as well as the Pancreatic Juice, becomes defective, inert, and languid; and all the Solids are farther relax'd, and, amongst them, the Organs of Digestion; whence every subsequent Meal lays a new Foundation for an Increase of the Disorder, and all its Symptoms. The Consequences of all this are, all the Symptoms related above from *Boerhaave*.

I must add, That when Women have acquir'd such a Habit, the watery Particles of the Blood loiter, or stagnate; and the other Particles are too large to pass thro' the minute Uterine Vessels, and form the *Catamenia*.

From what has been said, the Reasons are evident, why the eating Chalk, Cinders, Dirt, unfermented farinaceous Vegetables, as Oatmeal, and other indigestible Substances, induce a Chlorosis.

I cannot conceive it possible to adapt any Method of Cure to such a Disorder as has been describ'd, more likely to succeed, than that which consists in supplying the Organs of Digestion with Aliments the most easy of Digestion, and which approach the nearest to the Nature of the sound and healthful Juices; in due and prudent Evacuations of the first Organs of Digestion; in corroborating these Organs, and supplying the Deficiencies of Bile, by Aromatics, Bitters, and at last by Steel; in directing proper Exercise; and in expelling the Matter stagnating in the Glands, and other Parts, by the proper Emunctories, when once sufficiently resolv'd, in the manner specify'd above.

CACHIMIA. See **CACHYMIA**.

CACHLEX, καχληξ. A little Stone or Pebble, particularly such as is found in Waters, or by the Sea-shore, according to *Suidas*, who also makes it the Name of an Animal. *Galen, Lib. 10. de S. F.* says, that *Cachleces*, καχληκες, heated in the Fire, and quench'd in Whey, endue it with an astringent Virtue against a Dysentery. *Castellus*.

CACHOS, J. B. *Solanum pomiferum folio rotundo tenui*, C. B. It grows only on the Mountains of *Peru*, being a Shrub of an extraordinary Greenness, and bearing a round thin Leaf. The Fruit is like a Mad-apple, sessile on one Part, and turbinate on the other, of an Ash-colour, of a grateful Taste, and void of Acrimony, containing a very small Seed.

It is in great Esteem among the *Indians*, for its extraordinary Virtues. For it provokes Urine, expels the Stone in the Kidneys, and, what is better, they say that the Use of it diminishes the Stone in the Bladder, while it is yet soft, and capable of yielding to any Medicine. *Raii Hist. Plant.*

CACHOU. See **TERRA JAPONICA**.

CACHRY.

Cachry is of a heating and vehemently drying Quality, for which Reason it is a proper Ingredient in *Smeagma's*, [external deterfive Medicines] and makes a good Plaster for the Head in Defluxions upon the Eyes, provided it be taken off at the End of three Days. *Dioscorides, Lib. 3. Cap. 88.*

CACHRY is the Seed of the *Libanotis*, which Mr. *Ray* calls *Libanotis Cachryophora*. It is not used in the present Pharmacy; but is by some of the Antients recommended for its heating and drying Qualities; and if taken with Pepper and Wine, is said to be good for the Epilepsy. *Pliny* says, it is the Seed of one Sort of Rosemary; I suppose by Mistake, because Rosemary is sometimes called *Libanotis*. See **LIBANOTIS**.

CACHRY'S signifies sometimes roasted or parch'd Barley, as *Galen* explains it.

CACHUNDE.

This is the Name of a Medicine highly celebrated among the *Chinese* and *Indians*; but as the Describers of Aromatics, and the later Authors, had made no mention of it, *Zacutus Lusitanus* gives us the following Method of preparing it, which he says was with great Difficulty obtain'd of celebrated Physicians, who had the Health of the *East-Indian* Viceroy, and other Princes, for many Years committed to their Care.

Take, says he, of the Terra Cimolia, or of any other proper Earth, two Pounds; of Amber, one Pound; of Musk and Ambergris, each three Ounces; of the best Aloes-wood, by the *Portuguese* called Calambac, ten Ounces; of prepar'd Pearls, three Ounces; of prepar'd Rubies, Emeralds, Granats, and Iacints, each four Ounces; of red Sanders, four Pounds; of yellow Sanders, three Ounces; of Mastich, sweet Flag, Galangals, Cinnamon,

Cinnamon, Aloes wash'd with the Juice of Roses, the best Rhubarb, Indian Mirobalans, Belleric Mirobalans, Wormwood, red Coral, and Armenian Bole, each two Ounces; and of calcin'd Ivory, three Pounds and a half. The Ingredients to be pounded must be reduc'd to a very fine Powder, and after having sprinkled them with odoriferous Wines and Balsams, and Water distilled from the Flowers of the Cinamon-tree, they must be dry'd in a Shade, and mix'd up with a sufficient Quantity of the finest white Sugar; then with a Mucilage of Gum Tragacanth, and Gum Arabic, the Whole is to be reduc'd to a very tenacious, viscid Mass, which is of a pretty red Colour.

Of this Mass various Figures are form'd, which the Merchants convey to several Parts of the World, but principally to *Lisbon*, the most celebrated Emporium of the whole Earth. The *Indian Princes*, and the *Grandeas of China*, use this Antidote in the following manner: In the Day-time they keep a small Portion of it, about the Bulk of a Lentil, in their Mouths; from this Portion a sweet and fragrant Liquor gradually and insensibly drops from the Fauces to the Stomach, and gives the Breath so agreeable a Flavour, that all who come near them are sensible of it. This Medicine is truly worthy to be used by Kings and Grandeas, for the Preservation of the natural Heat; for it preserves and defends the Body from Corruption, prevents the bad Consequences of a pestilential Air, removes Melancholy and Flatulencies, and wonderfully relieves those who labour under melancholic Disorders. It removes Palpitations of the Heart, cures the Cardialgia, the Apoplexy, and the Epilepsy. It refreshes the animal and vital Spirits, invigorates all the Faculties, strengthens the Stomach, and resists Poisons of every Kind. It corroborates the Brain, and is the most sovereign Remedy in the World against a stinking Breath. It proves an Antidote to Venery, for which Intention it is much used by both Sexes in the *Indies*. In short, it is a truly royal Medicine; for it protracts Life, puts Death at a Distance, and is consequently sold at a high Price. Whoever uses it, cannot help admiring the happy Effects produced by it. *Zacutus Lusitanus de Medicor. Princip. Hist. Lib. 1. Observat. 37.*

CACHYMIA, *Cachimia, Kakimia*. A Term in *Paracelsus*, by which he intends an imperfect metallic Body, or an immature metalline Ore, which is neither a saline Substance, nor Metal; but almost metalline, since it has the first metallic Matter, and derives its Original from the three first Metals.

CACHYMIA may be divided, first, into *sulphureous*, as *Marcasites*, *Bismuths*, and *Cobalts*; secondly, into *mercurial*, or *arsenical*, *orpimental*, and *such-like*; and, thirdly, into *saline*, such are all *Talcs*. *Castellus*.

CACIA ferrea. An Iron Spoon. *Rulandus. Johnson.*

CACOA. See **CACAO**. *Blancard.*

CACOALEXITERIUM, *κακοαλεξιήριον*, from *κακός*, evil, and *ἀλεξιήριον*, a Remedy or Medicine. The same as **ALEXITERIUM**, which see.

CACOCOLIA, *κακοχολία*, from *κακός*, ill, and *χολή*, Bile. An Indisposition of the Bile. *Blancard.*

CACOCROI, *κακόχροισι*, from *κακός*, ill, and *χρῶμα*, Colour. Such as are ill-colour'd in the Face, in which respect they differ from the *Achroi*, *ἀχρῶσι*, colourless. *Galen. Comm. de R. V. I. A. Castellus.*

CACOCHYLIA, *κακοχυλία*, from *κακός*, ill, and *χυλός*, Chyle. A depraved Chylification. *Blancard.*

CACOCHYMIA, *κακοχυμία*, from *κακός*, ill, and *χυμός*, Humour. A depraved State of the Humours. See **CACHEXIA**.

CACODÆMONUM Magia, from *κακός*, evil, and *δαίμων*, a Spirit. Diabolical Magic, which uses the Assistance of evil Spirits; and is oppos'd to natural Magic, which is promoted only by natural Means. *Castellus.*

CACODES, *κακώδης*, from *κακός*, ill, and *ὀσφρῶ*, to smell. Ill-smelling, fetid. Thus *κακώδης ἐκρίσις*, in *Coac.* is ill-scented Matter discharged by Vomiting, which, in *Prognost.* is express'd in *ὀσφρῶ δυσώδης*, "if it has an offensive Smell."

CACOETHES, *κακοήθης*, from *κακός*, ill, and *ἦθος*, a Word, which, when used with respect to Diseases, signifies Quality or Habitude, and is expounded in *Galen* by *τέρας*, Manner, Disposition. An Epithet applied by *Hippocrates* to malignant and difficult Distempers. *Galen. Comment. 1. in Prorrh.* says, *κακοήθη νοσήματα καλῶν ὅσα κίνδυνον ἀπειλῶνται τοῖς καμνουσιν, ἢ ἀποκρίνεται τὴν γῆς σωσιμίας ἐλπίδα*. "We give the Name of *Cacoethes* to Diseases, which, tho' they threaten Danger to the Patients, do not cut off all Hope of Recovery." *Κακοήθης*, when applied to Signs or Symptoms, imports what is very bad, and threatening. Thus *Galen. Comment. 3. in Prorrh.* expounds *κακοήθης* by *μοχθηρὸν*, "laborious," under which the Patient labours hard for Life. And in the following Passage, 1. *Prorrh.* *τοῖσι θεῖσι αἰμαίνουσι μαλαγχαλῶς* Vol. I.

ὅσι τελέμει ἐπιγίγνηται, κακώδης. "If a Trembling seizes those who rave thro' Melancholy, it is *Cacoethes*." *Galen. Comment. 1. in Prorrh.* explains the Word by *ἐξ ἀτῶς ὀλιθιῶν*, "fatal to the last Degree." In *Coac.* in the same Case, *κακὸν* is used instead of *κακώδης*. The Word, applied to a Tumor, Ulcer, or Erysipelas, or any other like Affection, denotes Malignity, as in *Galen. Paulus*, and thus in *Epidem.* 3. *κακοήθεια* (*ερυσίπελας*) πολλὰς ἐκτείναν, "a malignant (Erysipelas) proved fatal to Multitudes." Opposite to *κακοήθης* is *εὐήθης* (*Euthes*).

CACONIÆ, *κακονίαι*. A corrupt Word for **CANONIÆ**, which see. *Castellus*.

CACOPATHIA, *κακοπαθία*, from *κακός*, ill, and *πάθος*, an Affection. An ill Affection, an Affliction. The Word occurs in *Hippocrates*, *περὶ ἀρχ. ἰησ.*

CACOPHONIA, *κακοφωνία*, from *κακός*, bad, and *φωνή*, Voice. A Depravation of the Voice, of which there are two Kinds, *ἀφωνία*, and *δυσφωνία*, that is, Dumbness, and Difficulty of Speech. *Galen. de diff. Sympt. Cap. 3.*

CACOPHRASTUS. A Name of *Theophrastus Paracelsus*, bestow'd upon him, as he complains, by malicious Persons, tho' he calls himself by the same, *Præfat. ad Paragranum. Castellus*.

CACOPRAGIA, *κακοπραγία*, from *κακός*, ill, and *πράξις*, to do or act. A Depravation of the Viscera, by which Nutrition is perform'd. *Blancard.*

CACORRHEMOSYNE, *κακορρημοσύνη*. The same as **CACANGELIA**, which see.

CACORRYTHMUS, *κακόρρυθμος*, from *κακός*, ill, and *ρυθμός*, Order. An Epithet of a disorderly Pulse. The same as **ARYTHMUS**, which see.

CACOS, *κακός*. Evil, bad. The Word is very frequently used by *Hippocrates* in prognosticating; and, 2. *Aph.* 33. is oppos'd to *ἀγαθός*. But whether it always signifies the same as *lethalis*, "deadly, mortal," is, with good Reason, doubted by *Galen. Castellus*.

CACOSINON, *κακίστηνον*, signifies the same as *κακός*, evil, hurtful. Thus *κακοσινώτατα*, in *Galen's Exegetis*, is expounded by *ἐπιβλαβέστατα*, "most pernicious." In the same Sense is *κακοσινώτερον* used in *Hippocr. Lib. de Fracturis*.

CACOSIS, *κάκωσις*, from *κακόωμαι*, to be indisposed, or disorder'd. An Indisposition. Thus we read, in *Hippocr. de internis Affect.* *κάκωσις τοῦ σώματος*, "a Disorder or Indisposition of Body."

CACOSITIA, *κακοςίτια*, from *κακός*, ill, and *σιτία*, Food. A Loathing of Food. *Castellus*.

CACOSPXYXIA, *κακοσφυξία*, from *κακός*, ill, and *σφυξίς*, from *σφύζω*, to leap, or beat, like an Artery. A Disorder of the Pulse in general. *Galen. de diff. Sympt. C. 4.*

CACOSTOMACHUS, *κακοσμάχων*, from *κακός*, ill, and *σμάχων*, the Stomach, is spoken of such Food as is disagreeable or hurtful to the Stomach, and is oppos'd to *εὐσμάχων*, (*Eustomachus*) "grateful to, or good for, the Stomach." *Gorræus*.

CACOTHYMIA, *κακοθυμία*, from *κακός*, ill, and *θυμός*, the Mind. Any vicious Disposition of the Mind in general.

CACOTROPHIA, *κακότροφία*, from *κακός*, ill, and *τροφή*, Nutriment. Any sort of vicious Nutrition in general. *Galen. de diff. Sympt. Cap. 4.*

CACTOS, Offic. *Carduus esculentus*, Park. Parad. 519. *Carduus spinosissimus elatior Chardone dictus*, Hist. Oxon. 3. 158. *Cinara spinosa, cujus pediculi estantur*, C. B. 383. *Raii Hist. 1. 300. Journ. Inst. 442. Boerh. Ind. A. 139. THE CHARDON. Dale.*

This is a Species of the Artichoke. It is a culinary Plant, which is blanched like Celery, and, like that, eaten raw with Pepper and Salt in *Italy*. In the Medicinal Virtues it agrees with the Artichoke, *CINARA*, which see.

CACUBALUM *quibusdam vel Alsine baccifera*, J. B. *Alsine baccifera*, Ger. *Scandens baccifera*, C. B. *Repens baccifera*, Park. **BERRY-BEARING CHICKWEED**.

It is distinguish'd from the other Species of *Alsine* by its Berries, which are of the Size of a Grain of Pepper, or an ordinary Juniper-berry, are green when young, and black when ripe, and full of small, black, shining, round Grains. It grows in *Italy*, and the Southern Parts of *France*; but I find no particular Virtues ascribed to this Plant. *Raii Hist. Plant.*

CACUMEN, *ἀκρον*. The Top of any Thing. See **ACRON**.

CADAVER, *καρὸς*. A Carcase.

CADEL AVANACU. A Species of *Ricinus*, growing in *Brasil*, and flowering and bearing Fruit twice in the Year, that is, in *January* and *July*.

The Leaves, bruised, and drank in Water, are purgative: They help the Bite of the Serpent call'd *Cobra Capella*, if reduced to Powder, and put into the Wound. The same, mix'd with the Leaves of the *Pandi Avanacu*, the Flowers of *Schem Pariti*, (a sort of *Indian Alcea*) and Honey, make a proper Unction for Pustules of the Head. One Seed of the Fruit, bruised,

bruised, and taken in Water, is the usual Dose for a Purge. In general this Shrub; in its tricoecous Fruit, agrees with the Ricinus, but differs from it in other respects. *Rati Hist. Plant.*

CADMIÆ.

The best sort of Cadmia is the *Cyprian*, which is call'd *Botrytis*, (cluster'd) and is of a dense Substance, moderately ponderous, or rather inclining to Lightness, cluster'd on the Superficies, of an Ash Colour, and, when broken, appears cineritious and æruginous on the Inside. The next in Goodness to the fore-mention'd, is pretty much of an azure Colour on the Outside, but whiter within, and distinguish'd by Veins, like those Onyx-stones which are digg'd out of old Mines [Hence it is call'd *Onychitis*]. There is also a sort of Cadmia call'd *Placitis*, (crustly) which is surrounded with Veins in the manner of Zones or Girdles, whence it is also call'd *Zonitis*. There is yet another Sort, which is call'd *Ostracitis*, (testaceous) which is of a thin Substance, and, for the most part, black and earthy, or testaceous, on the Outside; but the white is good for nothing.

The *Botrytis* and the *Onychitis* are useful Ingredients in Medicines for the Eyes; and the other Sorts are put in Plaisters, or among Powders, [Eng.] for cicatrizing of Ulcers. The best for these Purposes is the *Cyprian*; for what is brought from *Macedonia*, *Thracia*, and *Spain*, is of little Value.

Cadmia has an astringent Virtue, fills up hollow Places, and deterges Filth, is an Obstruent, Dryer, and Escharotic, restrains carnosus Excrecences, and cicatrizes old and malignant Ulcers [*τὰ κακὰ ὀφθαλμοῦ καὶ ἐλκῶν*].

There is also a sort of *Cadmia* which is made of the Soot that sticks to the Walls and Roof of the Furnace, in boiling of Copper. These Furnaces, which consist of Iron, and are very large, and call'd by the Workmen *Aceftides*, are closed at Top, in order to intercept and detain the Corpuscles which fly off from the Copper; and, after adhering in great Quantities, they at last thicken, and unite into one Body, constituting sometimes one, sometimes two, and sometimes all the sorts of *Cadmia*.

Cadmia is also made by burning the Stone *Pyrites*, which is digg'd out of a Mountain which overlooks the City of *Soli*. In the same Mountain are found, as it were, Veins of *Chalcitis*, *Alisy*, *Sory*, *Melantery*, *Cæruleum*, *Chrysocola*, *Vitriol*, and *Diphryges*. Some say, that *Cadmia* may be found in Quarries of Stone, mistaking for it a Stone which is much like it; such a Stone may be found at *Cuma*, but void of all Virtue, and may be distinguish'd from the *Cadmia* by its being lighter, ungrateful to the Taste, and offensive to the Teeth; whereas the *Cadmia*, readily yielding to the Impression of the Teeth, may be chew'd without Offence. They may be distinguish'd also by the following Experiment: The *Cadmia*, when levigated in Vinegar, and dried in the Sun, concretes; which the Stone, after the like Management, does not. Besides, the Stone bruised, and thrown into the Fire, hops, and sends up a Smoke nothing different from that of the Fire itself; but the *Cadmia* remains quiet, and emits a yellowish Smoke, resplendent like Brass, and curl'd and variegated like a Girdle. Moreover, the Stone heated in the Fire, and afterwards cool'd, changes its Colour, and becomes lighter; but the *Cadmia* suffers no Alteration, except it be kept in the Fire for many Days together.

Cadmia is also produced from the Silver Smelting-furnaces, but it is whiter, and less ponderous, and not so efficacious. They burn the fore-mention'd *Cadmia* by covering it with Coals, till it becomes transparent, and bubbles like the Scoria of Iron; and then quench it in *Aminæan* Wine, but, for the Pfora, in Vinegar. Some, after it is thus burnt, levigate it with Wine, and torrefy it afresh in a crude earthen Pot, till it appears like Pumice-stone; then levigate it again with Wine, and burn it the third time, till it be quite reduced to Ashes, retaining not the least Roughness, and so use it instead of Spodium. It is wash'd by pounding it in a Mortar, and throwing away the Water till no Drops swims at Top; and is then made into Troches, and reposit for Use. *Dioscorides*, Lib. 5. Cap. 84.

The Name *Cadmia* has been applied to several Things. *Dioscorides* understood by *καδμια*, the Recrements which arise from Brass, while melting in the Furnace. *Galen* applied it to two Substances, one which comes from Brass, which is the same with the *Cadmia* of *Dioscorides*; the other a native Substance in the Island of *Cyprus*, which he terms *αἰβάδις*, or stony. *Pliny*, besides the factitious *Cadmia* of *Dioscorides* and *Galen*, mentions another by the Name of *Lapis Aërsus*; which, he says, was an Ore out of which Copper was made; and this is, perhaps, the same with the *Cadmia Lapidosa* of *Galen*. The Dealers in Metals call by the Name of *Cadmia* the *Lapis Calaminaris*, used in making Copper into Brass; and the Germans have given the same Name to *Cobalt*; and therefore *Agricola*, and the more modern Writers, distinguish three Kinds of *Cadmia*, one metallic, one fossil, and the third that of the Furnace, which Division we shall here retain.

The metallic *Cadmia* is a fossil Substance, containing some

Portion of Copper, Silver, or of both, and is of two Kinds: First, the native *Cyprian Cadmia*, which is a fossil Substance, or Copper-ore. It is likewise found in several Places of *Asia* and *Italy*; and is probably the same which *Galen* found in the Island of *Cyprus*, tho' he does not mention, that Copper was obtain'd from it by Fusion. It is now altogether unknown, or at least confounded with other Copper-ores. The other kind of metallic *Cadmia*, or the *Cobalt* of the Germans, is a metallic Substance, from which *Arsenic*, (see ARSENICUM) *Zaffera*, and the *Encaustum Cæruleum*, are prepared.

This is distinguish'd, by Authors, by the Names

Cobaltum, Offic. *Cadmia Metallica*, Worm. Mus. 128. Charlt. Foss. 51. Aldrov. Mus. Metal. 256. Matth. 1338. Kentm. 74. Woodw. Att. 2. P. 1. p. 50. *Cadmia Metallaris aliis*, *Cobaltum metallicis*, Schw. 370. *Cadmia fossilis*, ex qua præp. *Zaffera*, Woodw. Att. COBALT.

The fossil *Cadmia* of *Agricola*, stony *Cadmia* of *Schroder*, *Lapis Calaminaris*, or Calamine of the Shops, is a fossil Substance, of a middle Consistence between Stone and Earth, of different Colours, such as a pale Colour inclining to White, Yellowish, and a blackish Red. This last is full of small ferruginous Globules, like Grains of Pepper, and mark'd with white Veins; and is found in great Quantities about *Bourges*, near *Saumur* in *Anjou* in *France*, and in many Parts of *England*. The others are dug in *Germany*, near *Aix la Chapelle*; and all Kinds of it seem to partake of an Iron-ore, because the greatest Part is attracted by the Load-stone. This Species of *Cadmia* was probably unknown to the ancient Greeks, or at least was not used by them in Physic, since it is not mention'd either by *Dioscorides* or *Galen*. It is now prescribed, by some Physicians, to dry running Ulcers, to heal the excoriated Parts of Children, either in a fine Powder by itself, or mix'd with Ointments. It is an Ingredient in the Ophthalmic Ointment of *Renodæus*; and in the red drying Ointment, the Plaister call'd *Manis Dei*, and in the styptic Plaister of *Charas*.

The *Lapis Calaminaris* is much used in cooling and drying Cerates; and is, in Powder, frequently sprinkled upon Sores and Ulcers, with a View of drying them, and disposing them to cicatrize. I have been told, that the Surgeons have lately observed, that *Lapis Calaminaris*, reduced to a very fine Powder, operates as an Escharotic; whereas in a more gross Powder it acts as a Dryer.

Preparation of LAPIS CALAMINARIS.

Take any Quantity of *Lapis Calaminaris*, and levigate it upon a hard Marble, with Rose-water; dry it, when reduced into an impalpable Powder, in little Drops, as it will fall from a Spatula upon a Chalk-stone.

In the same manner are prepared Tutty, and all hard friable Substances of the like Kind.

MAGISTERIUM LAPIDIS CALAMINARIS: *Magistery of Calamine.*

Take Calamine, four Ounces; beat it into fine Powder, or levigate it as above: Put it into a Matrafs, and pour upon it, of Spirit of Salt, one Pound. Let them digest upon warm Sand forty-eight Hours; filtre the Dissolution, and precipitate the Magistery with Spirit of Urine; free it from its Salt by several Ablutions, and dry it gently for Use.

It is emetic and cathartic, and given in the like Cases as Antimonial Emetics. Its Dose is from three to seven Grains.

CALAMINARIS DIAPHORETICUS: *Diaphoretic Calamine.*

Beat four Ounces of Calamine into fine Powder; put it into a Matrafs, which place in a Chimney; and put to it, by three or four Ounces at a time, of Spirit of Nitre, one Pound: Let it there stand, cover'd from Dirt, for twenty-four Hours; then decant the Liquor, which put into a Retort set in a Sand-furnace, and give it a gradual Heat to the third Degree, and so keep it till no Drops fall from it. When all is cold, take it out of the Retort, and keep it for Use.

Some say it is a good Sudorific, but it is little used. Its Dose is from ten Grains to half a Dram. One Ounce of it, infused in half a Pound of Spirit of Wine, makes an admirable Collyrium, and does great Service, by dropping it into the disorder'd Eye three or four times a Day. Some likewise make a good Collyrium by quenching a Lump of Calamine, of about four Ounces, ten or twelve times in one Pound of White-wine. *Quincy.*

CERATUM DE LAPIDE CALAMINARI: *Cerate of Lapis Calaminaris*, commonly call'd *Turner's Cerate*.

Take of fresh-made unsalted *May* Butter, and of the best yellow Wax, sufficiently defecated, each three Pounds and

and an half; of pure and newly-prepared Oil of Olives; four Pounds; and of the best Calamine-stone, sufficiently triturated, and pass'd thro' a Sieve, two Pounds and ten Ounces. Let the Wax and Butter be put into a proper Vessel, with the Oil, and melted over a gentle Fire; then strain them thro' a Linen Cloth into another Vessel, and immediately sprinkle the Powder of the Calamine-stone into it by Degrees, continually agitating the Mixture, and stirring it from the Bottom of the Vessel, till it begins to cool, and becomes so thick, that the Powder, in consequence of its Weight, can no longer subside to the Bottom of the Vessel.

Turner gives the following Encomium of this Cerate:

As I have had ample Experience of this Cerate, I may be allow'd, I hope, to judge of its singular Properties, and good Effects, in all cutaneous Ulcerations and Excoriations, either from Scalding, Burning, or Fretting of the said Parts by means of salt, acrid, or sharp Humours; upon which Accounts, not straining a tittle beyond its deserved Eulogy, I am bold to affirm, it will do more in all these superficial Hurts of the Body, than either *Unguentum Tutiae*, *Diapompholyx*, *Nutritum*, *Deficcativum Rubrum*, *Album de Calce*, *Rosatum*, or all the Epulotic Medicines now in Use; and for which Cause I can, for the public Benefit, sincerely recommend it to all the Professors of the Art; and do wish, that the Apothecaries would keep it made up in their Shops, to deliver, at a suitable Price, to indigent or poor People, instead of their ridiculous *Lucatellus's* Balsam, and other improper Medicines, which they call for ignorantly to heal their Skin-deep Maladies.

I know the Medicine has been imitated by several, and I have seen somewhat like it in some Gentlemen's Salvatories; but I know not more than two Persons I ever communicated it to, as I was wont to prepare it for my own Use.

The Medicine, thus prepared, is of a good Consistence, and a true Cerate, serving both for Pledget and Plaister, neither sticking troublefomely, nor running off, or about, by the Heat of the Parts; but keeping its Body, and performing Things incredible. Whoever thinks fit to take it into Practice, will never repent it, nor perhaps (when he has experienced it as I have done) think I have said too much in its Commendation. This is the Medicine I have so often taken Notice of, under the Name of *Ceratum de Lapide Calaminari*, which, that I might contribute my Mite to the Surgeon's Treasury of Medicine, I here have publish'd, and leave it to take its Fate: I am sure no ingenious Person will despise it for its being less compounded, and consequently less pompous, than some others, or for that it is only a *Tetrapharmacum*. Turner.

Tho' the above quoted Author claims the Invention of this Cerate, I have, as I remember, met with it in a very old *English* Chirurgical Author.

The greatest Quantity of Calamine is consumed in making Brass; and *Agricola* describes two Ways of doing this, in the following manner:

They take some Pieces of the best Copper and Calamine, first calcin'd, and finely powder'd; lay them in Strata in large Pots, each of which holds about fifty Pounds. Some add Glass likewise; and some use the *Cadmia* of the Furnaces, instead of the fossil Kind. These Pots are set in an arched Furnace, on Iron Stands, placed in the Middle of it, and the Fire is kindled below them. In the upper Part of each Furnace is a round Hole, cover'd with a Stone, by which they regulate the Fire. When the Mixture in the Pots has been thus exposed to a very great Degree of Fire, and continued in Fusion, for eight or nine Hours, it is changed to Brass, and increased very much in specific Gravity, tho' it has not yet the Gold-colour. The Pots, being cool'd, are taken out of the Furnace; and the Brass, which is now of the Colour of white Embers, and cavernous like a Pumice-stone, is melted a second time, and thrown into a Mould, the Sides of which are Stone, and the Wideness or Distance between these Sides equal to the Thickness that the Brass-plates, now become of a yellow or gold Colour, are desired to be of. These Plates are afterwards beat upon the Anvil, to make them perfectly uniform.

The other Way of making Brass is to

Take a Vessel in which Silver is usually melted, to coat it on the Outside with Clay, mix'd with Filings of Iron; and to line the Inside with the purest Honey. Small Copper-plates, of about a Finger's Breadth, are likewise rubb'd over with the same Honey, and then cover'd with fine Powder of Calamine, crude Tartar, and Charcoal made of the Lime-tree, mix'd in equal Quantities. The Plates, thus prepared, are thrown into the Vessel, and the Vessel cover'd with a Brick, over which the Coat of Clay is likewise carried, a Hole being made in the Middle large

enough to admit an Iron Rod, to stir the melted Metal. The Vessel is then set in such a Furnace as the Refiners use; and, as soon as the Calamine begins to mix with the Copper, a red Smoke ascends, which afterwards becomes partly red, and partly blue, and last of all yellow; and this shews, that the Mixture is now perfected. The Vessel being then taken out of the Furnace, the Brass is found of a perfect Gold-colour. In this Operation the Copper takes up a third Part, or at least a fourth Part, of its Weight of Calamine, and yet remains as ductile as before; for it may be drawn out into very fine Wire, or beat into very thin Leaves.

A much better Way of making Brass is now practised at *Bristol*, which, I am inform'd, consists principally in granulating the Copper, before it is fused, with the *Lapis Calaminaris*; but I am not acquainted with the precise Method of doing it.

Dale mentions two Kinds of *Lapis Calaminaris*, which do not seem to differ in any thing, except that the first is got from the *Mendip* Hills, and other Places in *England*; the second, in *France*.

The first is thus distinguish'd.

LAPIS CALAMINARIS, Offic. Mer. Pin. 211. Dougl. Ind. 50. Schrod. 348. *Cadmia fossilis*, alias *Lapis Calaminaris*, Worm. 128. Charlt. Foss. 51. *Cadmia fossilis*, Aldrov. Mus. Metall. 256. Worm. 128. Matth. 1338. *Cadmia Lapis*, Calc. Mus. 460. CALAMINAR-STONE.

The second is call'd

Calaminaris Lapis Bituricum, seu *Cadmia fossilis*, Ind. Med. 24. CALAMINE OF BERRY.

Cadmia Fornacia, or of the Furnaces, is of two Kinds; the factitious *Cadmia* of the Antients, and *Cadmia* of the Moderns, or the Tutty of the Shops. But the first Kind of factitious *Cadmia*, *Dioscorides*, *Galen*, and *Pliny*, understood to be only the Recrements of Copper-ore, which is blown off by the Bellows in melting Copper, and sticks to the Sides of the Furnace; of which there are different Species according to the different Figures into which it is concreted, and the Fineness and Variety of its Colours. The finest Kind, says *Pliny*, sticks in the very Edge or Border of the Furnace; and is as light as Wood-ashes or Embers. The best is that which hangs down from the Arch of the Furnace, and is call'd *βερρυάδης*, from the faint Resemblance it bears to Grapes hanging on the Vine. This is of a middle Weight between the foregoing Kind and the following, being of two Colours, one whitish like Wood-ashes, which is least esteem'd, the other purple, which is more valued. It is very brittle, and much used in Medicines for the Eyes. The other Kind sticks to the Sides of the Furnace, as being too heavy to rise to the Top. It is properly a Crust, and is used to destroy Cicatrices, or the remaining Marks of Wounds. From this, two other Kinds are obtain'd; one of a bluish Colour and spotted, the other red. The best *Cadmia*, according to *Pliny*, was found in the Furnaces of *Cyprus*; and he informs us further, that a *Cadmia* was likewise found in the Silver Furnaces lighter and whiter; but, however, much inferior to the *Cadmia* from Copper. *Galen* says, that a Sort of *Cadmia* was made from one Kind of Pyrites. But all these Kinds are now unknown in the Shops, neither do they seem to have been known to the *Arabians*, who were so little solicitous about the Substances called by the Name of *Cadmia* by the Antients, and which were only to be found in the melting Furnaces of the Island of *Cyprus*, that they gave the same Names without Hesitation to other Substances; whence a great deal of Confusion has arisen, and especially, because some of the latter *Arabians*, as well as those who have come after them, have endeavour'd to apply to these other Substances, what the Antients said of their true *Cadmia*; and thus *Avicenna* says of the Litharge of Silver all that *Dioscorides* has said of *Cadmia*.

The modern *Cadmia*, *Cadmia Fornacum* of *Agricola*, Tutia of the Shops, is a Recrement of Calamine melted with Copper, and not of Copper alone, as was that of the Antients. The officinal Tutty therefore may be defin'd a Sublimation of Calamine from melting Copper to the upper Part or Roof of the Furnace, where it concretes round Iron Rods placed there, into a solid Crust, which is afterwards beat off into Pieces, like the Bark of Trees, of a yellowish Colour, smooth on the inside, and sonorous; of a bluish Ash-colour on the Outside, and powder'd, as it were, with very small Grains of the same Substance.

This is perhaps the same with the Tutty of the *Arabians*; for *Serapion* describes a kind of Tutty, which is produced and collected in the Furnaces in which Copper is turn'd to a yellow Colour. But it is not certain, whether they might not likewise mean the *Calamine* itself by that Word.

The *Cadmia Fornacia* is usually thus distinguish'd.

Tutia, Offic. Dougl. Ind. 92. *Lapis Tutia*, Woodw. Att. T. 2. P. 1. p. 50. *Cadmia Fornacia*, Geol. Paracét. 182. Schw. 370. Worm. Mus. 134. Charlt. Foss. 55. *Agricola*. *Cadmia*

C A D

Cadmia Botryitis, Aldrov. Mus. Metal. 16. *Cadmia Capnitis*, Kentm. 43. *Cadmia Facitita*, Schrod. 3. 458. TUTTY. Dale.

Tutty is reckon'd among the principal ophthalmic Medicines. It deterges and dries without Acrimony, and is therefore prescribed with Success in Ulcers of the *Cornea*, *Adnata*, and Eye-lids; and likewise in Itchings of the Eyes, inveterate Ophthalmias, and to stop an involuntary Flux of Tears, and fistulous Humours.

It is seldom used without Preparation, which consists in heating it red-hot, and then quenching it three or four times in Rose-water, and afterwards levigating it according to Art on a Marble or Porphyry.

Take prepar'd Tutty, half a Dram; Mouse-ear, Eye-bright, and Rose-water, of each an Ounce; mix them, and make a Collyrium. Or,

Take Succotrine Aloes, and prepar'd Tutty, of each six Drams; white Sugar, a Dram; Rose-water, and any mild White-wine, of each six Ounces. Digest them in the Sun for forty Days, in a close glass Vessel, and keep the Liquor without straining it. It is apply'd, by dropping a small Quantity of it into the Eyes from time to time. Or,

Take of prepar'd Tutty, a Dram; fresh Butter, half an Ounce; make an Ointment, of which a little is to be apply'd to the Corners of the Eyes, and Edges of the Eye-lids. It is an Ingredient in the ophthalmic Ointment of Charas.

Unguentum Tutia, Ointment of Tutty.

Take of prepar'd Tutty, two Ounces; of Calamine burnt and quenched two or three times in Plantain-water, one Ounce; let them be reduc'd to a very fine Powder, and mix'd with a Pound and a half of the *Unguentum Rosaceum*, so as to make them into an Ointment.

Nicolaus was the first who gave a Prescription under this Title, which is in the *Augustan* Dispensatory; but that is loaded with a great many unnecessary Ingredients, and differs but little from the *Diapompholygos*: But the College at first receiv'd it in this more compendious manner, with the Liberty of making it either with Hog's-lard, or the *Unguentum Rosaceum*. The Tutty is prepar'd by Levigation, but if the Stone upon which it is ground, be not extremely hard, it will carry a good deal along with it into the Medicine: This is not very often refer'd to in Prescription, but is in great Esteem amongst the common People. Quincy.

The *Pompholyx* and *Spodus*, or *Spodium* of *Dioscorides* and *Galen*, are now unknown in the Shops. They tell us, that it was made two ways; the first by burning melted Copper to a white, smooth Powder; and the other by blowing off with Bellows what can be thus separated from *Cadmia*. *Dioscorides* mentions two Kinds of *Pompholyx*; one nearly the Colour of Copper, and moist and fatty; the other very white and smooth. This last, he says, was made by the Copper-smiths, in endeavouring to meliorate that Metal, which they did, by throwing into it a greater Quantity than usual of powder'd *Cadmia*; but it is uncertain, whether he here means New-ore, or the facitious *Cadmia* already mention'd. However this be, the fine Dust, or Flour, that arose from this Mixture, concentered into *Pompholyx*. It was likewise made by burning *Cadmia* alone in Furnaces; for having thrown it in small Pieces into the Fire, near the Nozel of the Bellows, they blow the most fine and subtle Parts against the Roof of the Furnace; and what was reflected from thence was called *Spodium*, which is of a blacker Colour, and heavier, than the *Pompholyx*, and full of Earth, and other Filth; and indeed was no better than the Sweepings of the Shops and Furnaces, and therefore was much less esteem'd than *Pompholyx*. These Substances might probably still be had, where great Quantities of Cyprian or red Copper are melted; but they are now unknown in the Shops.

The *Pompholyx* of our Shops, Nil, or *Nihil album* of some Authors, is a fine white Flour, or Soot, which sticks to the Arch of the Furnaces and Covers of the Crucibles, in which Calamine and Copper are melted together. It is to be chosen very clean without any Mixture, and has the same Virtues with Tutty. It dries, and is gently Astringent without Acrimony; it absorbs the corroding Acrimony of the Fluids, and from thence is reputed a Cooler.

It is used with Success to dry old cancerous Ulcers, and to cure Defluxions of the Eyes. From this Substance is made the *Unguentum Diapompholygos*, which is thus prepar'd.

Take of Oil of Roses, twelve Ounces; of the Juice of Garden Nightshade-berries, six Ounces; of White-wax,

C Æ C

and wash'd Cerufs, of each four Ounces; of Lead that has been macerated three Days in the sharpest Vinegar, and then dried and powder'd, and prepar'd *Pompholyx*, of each two Ounces; and of fine Frankincense, one Ounce. Let the Oil and Juice be boiled together to the Consumption of the latter; then let the Wax be melted in the same Oil, and the rest immediately added in Powder, and continually stirr'd about with a wooden Spatula, till the Whole is cold, and form'd into an Ointment.

This is ascrib'd to *Nicolaus*, and receiv'd into the *Augustan* Dispensatory, and the first of our College, with the Addition of *Nihil* to its Title. The latter hath indeed taken it with some Alterations, which are conform'd to in this; but they are of no great Moment. It was design'd for salt, hot, inflammatory Ulcers; but it is very rarely used for those, or any other Purposes in the present Practice. Quincy.

We have already said, That the *Spodus* or *Spodium*, of the *Greeks*, was the Ashes, or rather the metallic Flour, collected in the Furnaces and Shops of Copper-smiths; and that it differ'd from the *Pompholyx* in being more heavy, and not so pure. *Pliny* has, however, distinguish'd several Kinds of it; the *Spodium* of Copper, which is the best of all, that of Silver, called also *Laurosis*, from Mount *Laurus*, where there were Silver Mines; that of Gold, collected in refining that Metal; and that of Lead, which was next in Goodness to the Copper *Spodium*, according to *Dioscorides*.

The *Spodium* of the *Greeks* was never given inwardly, but was applied externally. Besides these Metallic Kinds of *Spodium*, the *Arabians*, abusing that Name, which in the *Greek* Language is very like the Word which signifies Ashes, added other Kinds, such as the Ashes of Plants and Animals. These Succedanea to the true *Spodium* were by the *Greeks* term'd *ANTISPODA* (See *ANTISPODA*); some of which are mention'd by *Dioscorides*; such as the Leaves, Flowers, and unripe Fruit of the Myrtle, calcined and wash'd; the Leaves of the wild Olive; Balls Glue; new-shorn, rough, greasy Wool; Pears, or Apples, moisten'd with Water, and then burn'd, and such-like. The Ashes of some burnt Roots were by *Avicenna* term'd *Tabascir*, which Word the Interpreters have render'd *Spodium*; and that *Spodium*, which was brought from the Eastern Countries, was undoubtedly a kind of coarse Sugar, as is prov'd by very strong Arguments, by the learned *Salmasius*; and therefore it is no Wonder, that by the *Arabians*, and those who follow'd them, the inward Use of *Spodium* has been so much recommended.

The *Arabians* were deceiv'd by the Ash-colour of coarse Sugar, and the Merchants by what was related to them, that it was the Powder of some burnt Reeds. Burnt Ivory is now commonly called *Spodium* in the Shops. Geoffroy.

The metallic *Spodium* is thus distinguish'd.

Spodium Græcorum, nihil gryseum, Offic. *Spodium*, Matth. Ed. 1339. Aldrov. Mus. Metall. 16. *Spodium facitium*, quidam cinerulem vocant, Worm. Mus. 135. *Spodos*, Kentm. 72. *Spodios facititia*, quibusdam cinerula, Charlt. Foss. 55. PUTTY. Dale.

CADUCUS, the Word alone put substantively, or, as an Adjective, with the Substantive *Morbus*, signifies the Falling-sickness, or Epilepsy. See *EPILEPSIA*. *Castellus*.

CADUS, καδος, perhaps from καδεν, which signifies to contain, or from the Hebrew *Cad*, a Measure mention'd in the Bible, and translated εδρια by the *Septuagint*. It is a Measure equal to the *Metretes* (about ten Gallons two Pints, English Wine-measure); for what *Dioscorides*, Lib. 5. calls μετρησιον γλευκος, *Pliny*, Lib. 14. Cap. 16. renders *Cadum Musti*. It is sometimes writ with a double δ as in *Pollux*, Lib. 9. where he tells, that αμφορευς was called καδδος by the Antients. And the same Author relates from *Philochorus*, that ημικαμφοριον esse ημικαδδιον.

Cadus was called κερδαμιν, *Hesychius* says, καδος εστι κερδαμιν. He tells us also, κερδαμιν το οινου η υδατος σταμνιον, "a Cera-mium of Wine or Water is a Stannium." So *Cadus* and *Stannium* are the same. *Arbuthnot*.

CÆCILIA, Offic. Jonf. de Serp. 19. Aldrov. Hist. Serp. 243. *Cæcilia Typhlops*, Charlt. Exer. 36. *Cæcilia Typhlops Græcis*, Gesn. de Serp. 60. *Cæcilia Typhlinus Græcis*, Rai Synop. A. 289. *Typhlops Cæcilia*, Mer. Pin. 208. THE BLIND-WORM, or SLOE-WORM. Dale.

This is a sort of Serpent, whose Bite has much the same Effects as that of the Viper; and is to be cur'd by much the same Methods.

Dale, from *Gesner*, gives an Account of a Theriaca being prepar'd of this Serpent, and Treacle-water, for a Sudorific in the Plague.

CÆCUBUM. Old *Aminæan* Wine. *Oribas. Med. Collect. L. 9. C. 6*. See *AMINÆUM*.

CÆCUM Intestinum. What we now call the *Appendicula Cæci*, is by *Rufus Ephesus* called the *Cæcum*. But modern Anatomists divide the large Intestines, which form one continu'd Canal, into three Portions. This Canal begins by a kind

kind of Sacculus or Bag, which is reckon'd the first of the three Portions, and called *Cæcum*.

The *Intestinum Cæcum* is then only a round short Bag, the Bottom of which is turn'd downward, and the Mouth and Opening upward. It lies under the Right Kidney, and is hid by the last Convolution of the *Ileum*. It is about three Fingers-breadth in Length, and its Diameter is more than double that of the small Intestines.

Through the membranous or common Coat of the *Cæcum*, we see three white Ligamentary Bands, which adhere very close both to the outer and muscular Coat. One of them is hid by the Adhesion of the *Mesocolon*; and all the three divide the *Cæcum* longitudinally into three Parts, more or less equal.

They all unite on the *Appendicula Vermiformis*, and cover its whole outer Side, immediately under the common Coat. Tho' they appear exteriorly on the *Cæcum* to be Ligamentary, they are made interiorly of fleshy Fibres, which accompany and strengthen the longitudinal Fibres of the muscular Coat.

The villous Substance of the inner Coat of the *Cæcum* is very short, and furnish'd in several Places with glandular Lacunæ, or solitary Glands, broader than those of the small Intestines.

These glandular Lacunæ, or Folliculi, are flatten'd and depressed in the Middle like the Pustules of the Small-pox. When we blow through a Pipe into these Lacunæ without touching them, the Folliculi are inflated, and represent little Caps with a Hole in the Middle of their convex Side. *Winslow*. See *INTESTINA*.

CÆMENTUM.

Cement. This is a Name given by Architects to that Substance put betwixt the Stones of Buildings for fixing and securing them. That tenacious Matter or Paste commonly used by Mechanics for making one Body adhere to another, is also called *Cement*. In a Word, Artists of different kinds have their different *Cements*, prepar'd in such a manner as best to answer their respective Intentions; but these are foreign to our Design. The Matter used by Chymists for the Joinings of their Vessels, is by some also called *Cement*; but as that Substance is more generally known by the Name of *Lute*, see the Article *LUTUM*.

It now remains, that I consider the *Cement* used by the Metallurgists, and Assayers of Metals, since by its Assistance the *Cementatory Calcination* of Metals, as it is called, is perform'd. This *Cement* then is prepar'd of the Duff of the reddest Bricks, Crocus of *Mars*, Crocus of *Venus*, plumous Alum, Vitriol, Salt, Blood-stone, Nitre, Sulphur, Sal Ammoniac, Sal Gemmæ, and some other Ingredients. This Powder, either dry, or moisten'd with Vinegar, Urine, or some other Liquor of a like Nature, is alternately sprinkled upon Plates of Metal, either with an Intention of corroding, depurating, or exalting. These Metal Plates, together with the *Cement*, are committed to a Box or Pot, which from its Use has the Epithet *Cementatory* affix'd to it. A Crucible may also be used for this Purpose. The Vessel carefully cover'd, is put upon the Fire, which is not to be raised to that Degree of Heat as to melt the Metal, but only increased so far as to put the corrosive Salts in Action, for corroding the prepar'd Metal from which the *Lamina* are intended to be purg'd.

Hence 'tis obvious, that several Salts are proper for forming *Cements*; that is, those Salts which are of such a Nature, as to act like a Menstruum upon the particular Metal to be corroded and separated from the rest of the Metallic Mass, on which they ought to have no Influence. *Cements* are used in the Depuration of the nobler Metal, and the *Cement* used in the Depuration of Gold is called *Cæmentum Regale*; because it spares Gold alone, and destroys all other Metals. What, in *Schroder's Pharmacopœa*, is called *Cæmentum vulgare*, is prepar'd thus.

Take of Brick-dust, eight Ounces; of common Salt prepar'd, four Ounces; of Nitre and Verdegrise, each half an Ounce: Mix together.

For depurating Silver from Copper, *Baguinus*, in his *Tyrocinium Chymicum*, gives a Receipt under the same Name, and consisting precisely of the same Ingredients, except that there is an Addition of two Ounces of white Vitriol. *Stahl*, in his *Opuscula*, excellently accounts for the Manner in which *Cements* act upon Gold. "When, says he, Gold is adulterated by an Inter-mixture of other Metals, especially Silver, tho' in a very small Quantity, by the Addition of corrosive Salts, reduc'd to a kind of Vapour by the Influence of the Fire, it is so thoroughly acted upon, that the Particles of the heterogeneous Metal are corroded, whilst those of the Gold are not in the least affected, by which means its Compages becomes very porous; and if a little more of a foreign Metal was added, it by that means becomes sufficiently friable. For this Purpose Nitre is chosen, together with such Substances as free its acid Spirit from its alkaline Parts, that the Spirit

VOL. I.

"may have Access to corrode the Silver or Copper mix'd with the Gold. Substances of this kind are Brick-dust, Bôle; and Vitriol; sometimes a little Verdegrise is added, and sometimes Blood-stone, or Crocus of Mars. But this is done principally with a View of heightening the Colour of the Gold, rather than promoting the Efficacy of the Corrosion. But, that this Business may succeed the better, the Gold must be prepar'd, that it may be fitly dispos'd for the Reception of these corrosive Steams. This is done by beating the Gold into pretty thin Plates, that the Vapours, which are not able to penetrate very far, may pervade them so much the sooner."

But 'tis to be observ'd, that many now disapprove of the Use of *Cement* in the Depuration of Gold, because it generally happens, that they carry off some of the precious Metal with them. The Reason of this seems to be, that some Quantity of common Salt, which is the Menstruum of Gold, is often lodg'd in the Nitre. 'Tis now obvious, that to *cement* is the same as to *stratify*; that is, for some time to expose a metallic Body to the Fire, along with *Cement*, Layer above Layer. Hence the Reason is plain, why *Cementation* is call'd corrosive Calcination. From what has been said, we likewise understand, why that Operation is call'd *Cementation*, in which Antimony, mix'd with Nitre, and, pounded, is calcin'd, in order to obtain the Liver of Antimony; and upon what Account *Kircher*, in his *Mundus Subterraneus*, affirms that the *Crocus of Mars* is prepar'd by *Cementation*; since, in that Preparation, Plates of Steel are laid, *Stratum super Stratum*, with a Paste made up of Quick-lime and Urine, and calcin'd in a cementatory Vessel. *Rieger*.

CÆRULEUM. A Name for the *CYANUS*, which see.

CÆSALPINA. This Plant was so nam'd by Father *Plumier*, who discover'd it in *America*, in Honour to *Andreas Cæsalpinus*, who was an eminent Botanist, and one of the first Writers on a Method of classing Plants.

We have no *English* Name for this Plant.

The Characters are;

It hath a Flower of an anomalous Figure, consisting of one Leaf, which is divided into four unequal Parts; the upper Part is large, and hollow'd like a Spoon. From the Bottom of the Flower arises the Pointal, amongst many incurv'd Stamina, which afterwards becomes a Pod, including oblong Seeds.

We have but one Sort of this Plant, which is, *Cæsalpina polyphylla, aculeis horrida*, Plum. Nov. Gen. Many-leav'd *Cæsalpina*, with large Thorns.

I find no Medicinal Virtues attributed to this Plant. *Miller's Dictionary*.

CAESAREÆ SECTIO.

By the *Cæsarean Section* the Moderns mean no more than that surgical Operation, whereby the Fœtus, which can neither make its Way into the World by the ordinary and natural Passage, nor be extract'd by the Attempts of Art, whether the Mother and Fœtus are as yet alive, or whether either of them is dead, is, by a cautious and well-tim'd Section, taken from the Belly of the Mother, with a View to save the Lives of both, or either of them. This Operation is, by some, call'd *ὑπερτομία*, or *ὑπερτομοσία*, tho' these Words are not to be found in the Writings of the Greek Physicians. In order to draw an Odium upon this Practice, we are told, that some of the most expert and knowing Physicians and Surgeons have not only censur'd the Operation as unsafe and cruel, but absolutely condemn'd it, as necessarily and unavoidably productive of Death. The Authors commonly alludg'd as favouring this Opinion, are *Paré*, *Guillemæus*, *Roslinus*, *Hoorn*, *Mauriceau*, *Solingen*, and some others, who are assert'd to be sworn Enemies to the *Cæsarean Section*. But, upon a careful Perusal of the Works of these Authors, I find none of them promiscuously condemning the Operation in all Circumstances, but only in certain dangerous Cases; when, for Instance, the Fœtus is to be cut from the Uterus of the Mother, as yet alive; in which Case, and others of a like dangerous Nature, the above-mention'd Authors have observ'd the most fatal Consequences resulting from the Operation. But, for the sake of Accuracy, I must here observe, that there are three Cases in which the *Cæsarean Section* is necessary.

The first is, when a pregnant Woman dies, either before the stated Time of Delivery, especially in the last Months, when the Fœtus is perfect, and suppos'd alive; or when she dies in Labour; or is cut off by a violent Death, and the Fœtus is perceiv'd alive in the Uterus, or at least is, upon good Grounds, presum'd to be so.

The second Case is, when the Mother is still alive, and the Fœtus dead, but, at the same time, so unnaturally situated, as that it cannot come into the World in the natural Way, either by the Efforts of the Mother, or the Art and Skill of the Midwife or Physician, in which Case the Life of the Mother is in the highest and most evident Danger.

The third Case is, when both the Mother and Fœtus are still alive; but the Fœtus, as in the former Case, can neither be expel'd in the natural Way, by the Efforts of the Mother, nor extract'd by the Art of the Midwife, so that both the Mother

ther and the Fœtus must be in the most imminent and unavoidable Danger of Death, unless they are sav'd by the *Cæsarean Section*.

In the first Case, that is, when the Mother is dead, and the Fœtus reasonably presum'd to be alive, I find few or none of the more noted Physicians and Surgeons, who disapprove of the Operation, since, without it, the Fœtus must necessarily die, as well as the Mother. And, as Delays in this Case are highly dangerous, they universally agree, not only that the deceased Mother should be laid open, but also that the Operation should be perform'd as soon as is possible; because, generally speaking, the Fœtus does not long survive the Death of the Mother; tho' *Doleus*, in *Encyclopæd. Lib. 4. Cap. 5.* informs us, that he perceiv'd the Fœtus to move in the Belly the Day after the Death of the Mother. In consequence of the Operation being perform'd in this Case, we have several Instances, not only in the remoter, but also in the latter Ages, of the Fœtus being taken alive from the Belly of the Mother. Accordingly, among the Antients, this memorable Circumstance is recorded of *Lycas*, mention'd by *Virgil*, of *Æsculapius*, of *Scipio Africanus*, thence denominated *Cæsar*, of *Manlius*, and, according to some, of the Emperor *Julius Cæsar*; and, in latter Ages, of *Edward the Sixth*, King of *England*, of *Sanctius*, King of *Navarre*, and several others mention'd by different Authors, and from that Circumstance call'd *Cæsares* or *Cæsones*. When, therefore, the Mother is already dead, or when the Surgeon perceives her to be struggling with the Agonies of Death, he should take care to have every thing prepar'd for the Operation, that, when she is actually dead, he may be ready to save the Fœtus, either by making a crucial Incision in the Abdomen, as in ordinary Dissections; or, which is a safer and more cautious Method, by a large longitudinal Incision, and not a crucial one, as most advise, made on either Side, with a Razor or Incision-knife, without any Regard to the Direction of the muscular Fibres, or the Course of the Blood-vessels. The Operation may be perform'd either in the Bed, or upon a convenient Table. If the Fœtus has fallen into the Cavity of the Abdomen, either in consequence of a Rupture in the Uterus, or by some other Cause, it must, in this Case, be taken out as soon as possible; and since, on the like Occasions, the Fœtus is generally very weak, a little *Hungary Water*, or some other Liquor of a like Nature, may be held to its Nose, for the sake of the Steam. The Breath also, either simply, or after having drank a little Wine or Brandy, is to be blown into its Mouth and Nostrils, in order to cheer it. The Navel-string must be ty'd in the ordinary Manner, and, for Decency's sake, Baptism administer'd. But if the Fœtus remains conceal'd in the Uterus, that Body must be cautiously laid open, the Child extracted, the Navel-string cut, and, if it is still alive, proper Methods must be us'd to cherish and support it; and thus the Operation is at an End. If the Fœtus is lodg'd in the Fallopian Tube, or the Ovary, which sometimes happens, the Abdomen is first to be laid open, and the Child carefully extracted; proceeding in other respects as before directed. But, in an Affair of such vast Importance as the *Cæsarean Section*, the Surgeon should carefully observe whether the Mother be really dead, or only in a Deliquium, lest he rashly perform the Operation on a live Woman, as we are told *Vesalius* did. He should rather be thoroughly satisfy'd of the Mother's Death, by observing whether there be any Motion of the Parts left, especially of the Heart, Arteries, and Lungs; and have the joint Concurrence, if possible, of the By-standers, as to the Propriety of the Operation, before he attempts the least Incision; tho', at the same time, we have no Instances of the Mother reviving under the Operation, after she has been taken for dead; and tho' such an Accident should really happen, the Surgeon has no Reason to think, that he commits Murder, since, in consequence of his believing the Mother to be dead, his Attempts to save the Fœtus not only flow from a Principle of Humanity, but are also authoriz'd by the Laws of the Land. In such a deplorable Case, as there are still some faint Remains of Hope, especially if the Operation has been perform'd by a simple longitudinal Incision on one Side, the Surgeon must stitch up the Wounds, and treat them in the most skillful Manner he possibly can, since live Persons, who have voluntarily submitted to have the Fœtus extracted in this Manner, have sometimes happily recover'd; for, if the Surgeon should delay too long, from a mistaken Terror of murdering the Mother, the Fœtus may be lost, and the Operation perform'd in vain. Some condemn the Operation altogether, because, say they, after the Death of the Mother, we are not certain whether the Child is still alive; for which Reason they are not, in the Phrase of the Vulgar, for disturbing the poor Mother, after she is dead. Tho' I do not deny, that it is often a hard Task to determine certainly whether the Fœtus be dead or alive, and that, in consequence of this, the Operation must often be perform'd in vain; yet, in my Opinion, it is still more advisable to open ten, or even an hundred dead Mothers in vain, than to lose one live Fœtus for want of the Operation.

My Advice, in general, is, that the Operation should be

perform'd as soon as possible on all Women, who die either a little before, or in the very Pangs of Delivery; partly that the Fœtus may be extract'd alive, baptiz'd, and rescu'd from the Jaws of Death; and partly for the better Information of Physicians, Surgeons, and Midwives, to acquaint them with the Figure, Bulk, and Structure of the Uterus in pregnant Women, with the Posture of the Fœtus in it, the State of the Membranes, the Disposition of the Secundines, and their Connexion with the Uterus, that they may, at other times, be the better qualify'd for affording Relief in Circumstances of a like Nature; and partly, according to *Deventer*, that it may be discover'd whether the Death of the Mother was owing to the Unskillfulness of the Midwife or Surgeon, or to some other Cause; that they may be punish'd or acquitted accordingly, and arrive at a greater Knowledge in their Profession. We must not then delay performing the Operation upon a Woman who dies in these Circumstances, much less must we bury her with the Fœtus in her Belly, which is too often the Case; since, on some Occasions, the Child may remain alive in the Uterus a long time after the Death of the Mother; for I think it barbarous and inhuman, repugnant to Christianity, and inconsistent with Mercy, to bury the Child, as yet alive in the Uterus, with its dead Mother. I therefore think, that not only among Christians, but also where-ever Humanity and Compassion have the least Regard paid them, Princes and Rulers should enact the severest Laws, injoining that all Women, who have died during Pregnancy, should not only be laid open before they are bury'd, but also that this should be done immediately after the Death of the Mother, by skillful Physicians and Surgeons, lest, by a Delay, the Fœtus should be allow'd to die in the Uterus, or, by omitting the Operation altogether, it should be bury'd alive with its dead Mother; since, in this Case, they might justly be said to be murder'd, according to that eternal, immutable, and unalterable Law of Nature, *Whom thou didst not save from Death, when it was in thy Power so to do, him thou hast kill'd*. The most antient of the Roman Kings, tho' destitute of the Light of Reveal'd Religion, were mov'd with the highest Compassion for Infants in this Condition, since they made a Law in their Favour call'd the *Lex regia*, which may be justly dignify'd with the Epithets *Christian* and *Divine*, injoining, *That no Woman who died pregnant, should be bury'd before the Fœtus was extract'd from her, and making it a capital Crime to do otherwise*; adding this as a Reason, *That he seems, by so doing, to have destroy'd the Life of the Fœtus*. Their Intention in this Law, doubtless, was, that the Operation should be perform'd in due Season, that is, soon after the Death of the Mother; because the Fœtus, as we know by Experience, does not long survive. But, tho' most of our Lawyers acknowledge the Equity and Sanctity of this Law, yet, by some unhappy Fate, it is seldom or never minded any-where among Christians in our Times, but as much neglected, as if there were nothing relating to it inserted in the Body of the Law. *Hildanus*, indeed, tells us, that this Royal Law was, for the most part, observ'd in his Country, that is, in *Switzerland*; but in other Countries, as far as I could learn, they make no Scruple to bury their dead pregnant Women without Section. Princes and Magistrates, indeed, convict and punish Whores, when their Infants perish for want of a Ligature of the Navel-string, or for some other Neglect; and, in my Opinion, justly; for which Reason I cannot but the more wonder, that they inflict no Punishment on those by whose Fault, or Negligence, the Children of those who die pregnant, perish in the Womb, when they might often have been preserv'd; since the Life of a Child is as much concern'd in one Case as the other, and the Guilt in both Cases is alike. Pertinent to this Purpose is what *Mauriceau, Observ. 345.* relates of a Man who would not suffer his Daughter's Womb, who dy'd without Delivery, to be rip'd open, and so wilfully occasion'd the Death of the Child; a Crime which deserves to be severely punish'd: So here, at *Helmstadt*, a Man would not suffer me to make an Incision in his dead Sister, but threaten'd to shoot me, if I came into his Doors upon such an Account; and so the Child also perish'd. I cannot but think, that Legislators would do nothing improper, or unbecoming their Office, by taking all due Care, and issuing strict Orders, that no pregnant Woman, who dies before or in the Time of Travel, should be interred before Incision of her Belly and Uterus.

When the Mother is still living, but her Child dead in the Womb, without any Hopes of its coming away, or being extract'd by the natural Passages, as usually is the Case; when there are Indications, that the Child sticks in the Tuba Fallopiana, or the Ovarium, or in the Cavity of the Abdomen, or, perhaps, in a kind of Hernia without the Belly, of which *Sennertus* and *Hildanus* have given us each an Example; or if the Passage be obstructed by a Callus, a Scirrhus, a Tumor, or an Exostosis about the Os Uteri, or in the Vagina; or if there be too great a Straightness of the natural Parts, occasion'd either by an incurable Coalition of the Vagina, or a Callus, or an ill Conformation of the Bones of the Pubes, which is incident especially to Women of a dwarfish Stature, and thereby the Fœtus is render'd incapable of Expulsion; and the Mother, thro'

thro' the Vehemence of the Pains, or Convulsions, or a violent Hæmorrhage, or some other considerable Cause, should have her Strength exhausted, and, by that means, her Life endangered, I judge the *Cæsarean Section*, tho' never prescrib'd by the Antients for living Persons, and condemn'd by many of the Moderns, to be absolutely necessary for preventing the Death of both the Mother and the Child; for, in these Cases, an Extraction by the natural Ways, which *Mauriceau* advises before a *Cæsarean Section*, in every preternatural Birth, can have no Place. Therefore, in all such Circumstances as render it impossible to extract the Fœtus by the ordinary Ways, (for about these are we principally concern'd) Incision of the Belly is, indeed, a severe and dangerous, but the only Remedy to deliver the Mother from the Fœtus, and from imminent Death; and we are not without Examples, in various Authors, of this Section being happily perform'd; so that *Mauriceau* speaks against Reason and Experience, when he asserts, that this Section is always mortal to the Mother; for which Reason he is also reprehended by *La Motte*, who was himself no Friend to this Operation, but rejected it on some very proper Occasions.

However, tho' there be many Examples of this Operation being perform'd successfully, and tho' there are very few but will admit of a Section of the Belly and Uterus, when the Mother is dead, and even while she is alive, if Nature points out the Way, by some Tumor, Pain, or Abscess, in some Part of the Belly, as on one Side, or about the Navel, in which Case this Operation is usually perform'd with Success, as several Authors have observ'd, because it is follow'd by little or no Hæmorrhage, and the Fœtus, on these Occasions, generally sticks in the Fallopian Tube, the Ovary, or the Cavity of the Abdomen; yet there are some very eminent Physicians and Surgeons, who will by no means admit of it, and not only dissuade from the Practice of it, but utterly condemn it, as cruel and barbarous, and always destructive and fatal to the Mother, when the Fœtus is detain'd in the Uterus, and no Abscess manifests itself. Some of the principal Gentlemen of this Opinion are *Guillemeau*, *Mauriceau*, *Rolsincius*, and *Seligen*; and for this Reason, because they always observ'd it to be succeeded by the Death of the Mother; tho' that might often happen from some other Cause. And some of them do not stick at branding those Physicians, who advise or undertake this Operation while the Fœtus is in the Uterus, and no Abscess is discover'd, with the Titles of *cruel* and *rash*; because, say they, the Fœtus should rather be extracted, by the natural Passage, with the Hand, or by the Help of Instruments, and not by ripping up the Belly and Uterus, with the utmost Danger of the Mother's Life, by the *Cæsarean Section*. But these Gentlemen are sufficiently confuted, both by Reason, and the Experience of some of the most sagacious and approv'd Physicians and Surgeons, such as *Ross*, *Baehne*, *Sennertus*, *Hildanus*, *Fienus*, *Scultetus*, *Scipio Mercurius*, *Roonbuisen*, *Ruleau*, *Lancisi*, *Saviard*, *Jobert*, *La Motte*, *Teichmeierus*, and others, who all assure us, that the Mother has sometimes happily surviv'd the Operation.

I confess, with respect to the Mother, the Operation is very dubious and hazardous, especially when the Fœtus is to be cut out of the Uterus, and no Abscess appears; and, therefore, I am of Opinion, that it ought not to be undertaken without absolute Necessity; tho', from what has been said, and what will further be remark'd, I cannot but think it, on some Occasions, useful and necessary. *Goucy*, indeed, one of the latest Writers of Surgery among the *French*, *Ross*, *Scipio Mercurius*, and *Welschius*, endeavour to prove, that the *Cæsarean Section* has no more of Difficulty or Danger in it, than cutting for the Stone; and, if dexterously manag'd, ought to be frequently undertaken, as appears from Examples which they bring. But, for my part, I cannot consent to so great a Length, and that for weighty Reasons, added to the Observations of *Pare*, *Guillemeau*, *Rolsincius*, *Mauriceau*, and *Seligen*, shewing the frequent unhappy Events which attend such an Operation; and, particularly, because of the Danger of an immoderate Hæmorrhage, or a Gangrene, and the Hazard which accompanies Wounds of the Uterus, especially in pregnant Women, as was long ago well observ'd by *Celsus*, *Lib. 5. Cap. 56*. *Mauriceau*, with some others, as I observ'd, is for extracting the dead Fœtus always by the natural Passages, with the Hands, or by the Help of Instruments, rather than have recourse to so dangerous an Operation as the *Cæsarean Section*. I heartily agree with this their Opinion, as often as the thing is practicable; and utterly disapprove the Rashness of those Surgeons, who have ventur'd upon a Section of the Belly, when the Fœtus might have been extracted by the Vagina, tho' the Operation was sometimes attended with Success. However, since Cases often occur, such as I mention'd above, where it is impossible to extract the Fœtus by the usual Passage, and the Mother is in utmost Danger of perishing, on account of its Detention in the Uterus, I look upon it as a barbarous and impious thing to leave the unhappy Woman, who earnestly implores our Assistance, or at least extremely wants it, without Help; and am of Opinion, that, in Cases of Extremity, the last or most desperate Remedies are to

be us'd; and certainly, according to the Judgments of *Hippocrates* and *Celsus*, the venerable Fathers of Medicine, a dubious Remedy is better than none, and preferable, in such Cases, to leaving the poor Woman helpless in that most deplorable State, under the greatest Torments, and giving her up to inevitable Death, while there is still Hope of saving her, as appears from happy Examples. Therefore I think those Physicians much in the wrong, who had the Care of the Woman mention'd by *Saviard*, *Observ. 114*. who, when they found the Birth was impossible, because of the Narrowness of the Passages, would not undertake a Section, but left both Child and Mother to perish together. And in his *Observ. 60*. we have an Instance of a Woman who beg'd for Section, but could not obtain it. Some there are, as *Mauriceau*, *Lamotte*, and others, who acknowledge, that there are Cases in which it is impossible for the Fœtus to be brought away by the ordinary Passage; and yet advise, in such a Circumstance, to leave the Conduct of the Matter wholly to Nature, rather than expose the Patients to so dangerous a Section; because Nature often finds out Ways, by means of an Abscess in the Belly, Navel, Groin, or *Intestinum Rectum*, to expel the putrefy'd Fœtus with less Danger than it could be extracted by Section of the Belly. In this I agree with them, as often and as long as the Mother is in no Danger of her Life from this Forbearance, which is sometimes the Case: But when the Danger is urgent, when by too long waiting we hurt, and in a manner kill the Mother, I think we ought to have recourse to the last Remedies, especially such as have been known to succeed, rather than give up the Patient, who might be under a Possibility of being helped, tho' by a dubious Remedy, to an unavoidable and most miserable Death. For, certainly, a Physician seems to me then only to have discharg'd his Duty to the full, and satisfy'd his Conscience, when he has done all things, and omitted nothing that he knows to be serviceable, and which he is sensible has done Good in other Cases of the like kind, without regarding what some, perhaps, may object against his Proceedings, especially when the Patient herself, whose Life is dear to her, and who had rather try a dubious Remedy than none at all, desires it of him. Others there are, who confess that the Reason why they will not undertake this Operation, is the Disgrace they are like to undergo, if it should not succeed: But this seems to me a very vain and trifling Excuse in so serious an Affair, and hardly becoming a good Man, much less a Christian Physician, who, in the way of his Duty, ought to stand in Awe of no Man, much less to be deterred by the Censures of the Vulgar, or the Calumnies of the Malicious. In short, all things are to be done by a Physician for the Preservation of his Patients in general, and especially those of the weaker and tender Sex, in this their most miserable and helpless Condition. And *Lamotte* himself has several times perform'd Operations on Women, and particularly the Extraction of the Fœtus, even against the Mother's Consent; to accomplish which, he order'd Women in such a Circumstance to be held by strong Men, that he might by Force extract the Child, when in an ill Situation, in what manner he thought fit. Now, if he thinks such a Proceeding to be fair and lawful, why may we not, with a safe Conscience, use the same violent Means for extracting the Child by a Section of the Belly, that, if the Mother will not voluntarily submit to what skilful Physicians shall judge necessary for her Preservation, she may be compell'd by Force to undergo it? For my part, I see no Reason to the contrary. How much more then are we to lend our Assistance in the former Case, when it is not only voluntarily desir'd, but earnestly intreated!

If, then, the unhappy Woman consent to submit to Section, or voluntarily desire it, the first thing to be consider'd is, whether she has sufficient Strength to undergo the Operation. For if she be very weak and low, be cold in the extreme Parts, and in a cold Sweat, it is to be fear'd, that she will die soon after the Section, and so the Cause of her Death, by ignorant and malicious Persons, may be imputed to the Operation, and the Surgeon. It is best, therefore, in this Circumstance, to forbear such an Undertaking, lest, as *Celsus* says, *Lib. 5. Cap. 16*. we might be thought to kill the Woman, who, in reality, dies of the Violence of her Distemper. But if she be in good Strength and Heart, and there is Hope of saving the Mother, or Child, or both, the Operation is to be readily undertaken; for the right Performance of which, we are to consider, first, what is to be done before the Operation; secondly, what is to be done under the Performance; and, thirdly, what after it. Before the Operation the proper Instruments are to be laid ready, which are, a straight Knife, firmly set in the Handle, and such as is represented (*Tab. 52. Fig. 8.*); or such a one as is commonly used in anatomical Dissections, or else a Razor, or some such Instrument; or one of the blunt Instruments, represented (*Tab. 26.*); also a blunt-pointed Pair of Scissors, with crooked Needles, threaded with strong Threads, or Cords, as for Gastrography; a clean Sponge or two; hot Wine, or some hot vulnerary Decoction in a Vessel; with the proper Apparatus of Bandage, consisting of Lint, Plaisters, Bolsters, and Fillets; not forgetting internal corroborative Medicines, and external ones,

ones, to be apply'd, if needful, to the Mouth and Nostrils. All these Things being fitly disposed out of the Woman's Sight, she is first to make Water, lest the Bladder, being distended with Urine, might be exposed to the Knife; she is then to be placed in a proper Situation, either on a Table, or Bed, in the midst of the Chamber, on her Back, in such a manner as that the Attendants may have convenient Access; and her Spirits are to be kept up by pleasing and pious Words, her Face being cover'd, that she may not be terrify'd at the Sight of the Instruments; and her Arms and Legs are to be held by at least four robust Persons, that she may lie immoveable; or, if you think fit, they may be ty'd.

The Surgeon then, standing at that Side of the Woman which seems most convenient, enters a strait Knife by the external Side of the Musculus Rectus, or in the Space between the Navel and the upper and fore Eminence of the Os Ileum, where Persons are now usually tap'd for the Dropsy, (which seems to me, as yet, the fittest Place) making a strait Incision, first thro' the Skin and Fat, about eight or ten Fingers-breadth in Length, after that, thro' the *Musculi Obliqui* and *Musculus Transversus*, and, lastly, with the utmost Caution, thro' the *Peritonæum*; where the principal thing to be observ'd by the Surgeon is, to make but a very small Wound, or Aperture, with this first Knife, for fear of hurting something withinside. Then with another Knife, probe-pointed, (*Tab. 26.*) or with the Scissars, he is to dilate the Wound; or, if he has not the last Instruments in Readiness, or thinks fit to use but a few, he may introduce his Finger thro' the Wound into the Belly, and by the Assistance and Direction hereof, with the first Knife, or with the Scissars, enlarge the Wound, till it seems wide enough for the Extraction of the Fœtus, taking all possible Care, that he hurts nothing else withinside, which may be readily avoided, by dexterously following these Directions: A sufficient Aperture being made in the Belly, the Situation of the Child, and where it sticks, is to be thoroughly inspected. If it be found to lie without the Uterus in the Cavity of the Abdomen, as it sometimes happens, you are immediately to extract it, together with the Secundines. If it be situated in the Fallopian Tube, or in the Ovary, an Incision is to be cautiously made in these Parts, and the Fœtus, with the Placenta, to be extracted thence. If the Fœtus be detain'd in the Womb, the Case is more hazardous, for fear of an immoderate Hæmorrhage, or dangerously hurting the Uterus, the Wounds of which Part have, from all Antiquity, been observ'd to be very pernicious, especially in pregnant Women. However, since the Child cannot be otherwise extracted, an Incision is here also to be made, and afterwards in the Membranes of the Fœtus, wide enough for accomplishing the Extraction. This done, and the Fœtus and Secundines being brought away, the extravasated Blood in the Belly is to be deterg'd with Sponges express'd out of warm Wine, or some warm vulnerary Decoction; and if the Effusion of Blood be immoderate, it should be restrain'd by Lint moisten'd with highly rectify'd Spirit of Wine, and introduc'd into the Wound of the Uterus; and the divided Orifices of the larger uterine Vessels are to be compress'd with the Fingers upon Lint, till the Hæmorrhage ceases, or, at least, is very much abated. We have here Occasion to take Notice, that Women, in Child-birth, and after it, often lose a vast Quantity of Blood without Danger of Death; and, therefore, the Surgeon ought not, on a sudden, to be terrify'd at a pretty copious Hæmorrhage on this Occasion, especially if his Patient continues to preserve her Strength and Spirits. After some reasonable Space of Time allow'd for the Woman to recollect her Spirits, and to be refresh'd with some corroborative Medicine, the Lint is to be gently remov'd from the Wound, and the Belly again deterg'd with warm Sponges. The Wounds of the internal Parts are not to be sew'd, as some heretofore directed; but, after an Application of Balsam of Capivi, or something like it, are to be left to Nature; for, as the Uterus gradually contracts itself, the Lips of the Wound come together, and, at last, if nothing intervene to prevent the Cure, are conglutinated.

But the Wound in the Belly is to be sew'd up with two or three Sutures, in the same manner as has been directed for Wounds of the Abdomen (See ABDOMEN); and a Tent, Pipe, or Canula, of considerable Bigness, is to be adapted to the lower Part of the Wound, in order to keep it open; for thro' this Aperture not only the noxious Humours, discharg'd from the Wound in the Uterus, and remaining within, and those which continue to discharge themselves, may find a Vent, but by the Help of Injections, as is practis'd in other Wounds of the Breast and Abdomen, they may also be brought away. And this Method must be continu'd till the Lips of the Wound are conglutinated, and all Efflux of Pus, or any other Humour from the external Wound, ceases; an Indication that the internal Wound is heal'd. After the Threads us'd in the Suture are cut and extracted, omitting the Tent or the Pipe, the exterior Wound is also gradually conglutinated by vulnerary Balsams, and agglutinating Plaisters. Most, indeed, advise sewing the Wound of the Belly; but, after considering the Matter with myself, and observing that other Strait, or, as they are commonly call'd, longitudinal

Wounds of the Abdomen, for the most part, need no Suture, and, by the more modern Surgeons, are excepted from those which are to be sew'd, since their Lips may, for the most part, be commodiously join'd, and retain'd in Contact, by proper Plaisters, and a large uniting Bandage, I am of Opinion, that, in these Cases, we do not often stand in need of Suture, if proper Bandage is carefully apply'd. *Roussel*, taught by Experience, declares that, in this Case, he did not think Suture very necessary: But, if Bandage should be thought absolutely insufficient for the Purpose, then Suture is to be us'd. Some, before the Section is made, mark with Ink not only the Part where it should be made, but also where, and in what Places, Suture should be perform'd; but, as these Marks are quickly obliterated, and effac'd by the Effusion of Blood, I think this Advice altogether trifling and useless. As for the Situation of the Patient in Bed after the Operation, most Authors advise, that she should lie continually on her Back; but, to me, it appears more proper, especially if the Wound has been made on the Side, that the Patient should, as much as possible, lie with the Wound undermost, that some Part of the noxious Humours collect'd within may not only flow continually, and, as it were, insensibly out from the external Wound, but also that the Lips of the Wound may be the more easily agglutinated; which Advantage is more easily procur'd when the Section is made in the Side, than when the Operation is perform'd in the middle or anterior Part of the Belly. *Roussel* also advises, that a hollow Pessary should be introduc'd into the Uterus, that the Blood may be the more easily convey'd from it. Besides, the Physician must prescribe a proper Regimen, and suitable internal Medicines, such as are, on other Occasions, order'd for those who have receiv'd large Wounds; and these are to be persister'd in, till the Patient is thoroughly recover'd, which, in *Lancisi's* Patient, happen'd in six Weeks.

From what has been said, 'tis obvious to every one, that this Operation, especially when a very large Aperture is made in the Uterus, must be attended with the greatest Danger. But since there are many Instances of Mothers being preserv'd by this Operation, who must have otherwise died very soon according to all Appearance, and since there is often no better, and indeed no other, Method of relieving the miserable Woman, I think it advisable, rather to attempt this hazardous Operation in Cases where all other Hopes of Relief are cut off, than to abandon the miserable Patient, and leave those to the gloomy Prospect of unavoidable Death, who are often so fond of Life, as to submit to the most cruel Measures for preserving it.

Enough I think has already been said concerning the common and ordinary Method of extracting the Fœtus from the Uterus. But as certain Cases now-and-then occur, in which the Operation is to be otherwise perform'd, these also deserve our Consideration. When, for Instance, the Fœtus can neither be born in the natural manner, nor extracted from the Uterus, there appears any Tumor or Abscess in some Part of the Belly, especially about the Navel, accompanied with Pains more or less acute, as happen'd in the Cases mention'd by *Roussel*, *Baubine*, *Hildanus* from *Albucaasis*, *Alexander Benedictus*, and others; as also in the Instance recorded by *Cyprianus*, that celebrated Dutch Physician, in *Epist. de Hernia uterina*; and in the Case describ'd in the Annals of the *Julian Academy*, for the Year 1727; in which a Tumor and Abscess appear'd in the Musculus Rectus, hard by the Navel, as happen'd in most of the foremention'd Cases; and, upon opening the Tumor, all the Bones of a perfect, but putrified Fœtus were extracted. These Bones are in my Custody, and the Mother is still alive.

In Cases of this Nature, I think the most proper Place for performing the Operation, is that which is indicated and pointed out by Nature itself; since under it, for the most part, are lodg'd both the Fœtus, and the corrupted Humours, which create such intolerable Pains to the miserable Mother. If, then, such an Abscess should be already broken, as sometimes happens, and if the Aperture in it should be too small, it is, as in other Abscesses, to be sufficiently enlarg'd, either with a groov'd Probe, and proper Knife; or, instead of the Probe, with the Finger and Knife, or with Scissars, or with that Knife delineated in *Tab. 26. Fig. 3.*

Then the Bones of the Fœtus left after the Putrefaction of the soft Parts, or whatever of a corrupted Nature is found in it, are to be extracted, either with the Fingers, or with a Pair of Forceps; the vitiated Humours are to be evacuated, the Ulcer is to be deterg'd by proper Medicines, and then conglutinated by such Balsamics as are in like Cases directed by skilful Surgeons. If there is as yet no Aperture in such a Tumor of the Belly, but if Pains, and other bad Symptoms in and about it afflict and weaken the Patient; and especially if to the Touch there appears to be Pus in the Tumor as in Abscesses, lest the Patient should suffer thereby, we must, after consulting with other skilful Practitioners, make a sufficiently large Incision in the Abscess or Tumor, extract the Fœtus; or its Bones, if the Flesh be putrified, dislodge every thing of a corrupted Nature, deterge the Ulcer, and agglutinate it in the manner

manner already directed. In the above-mention'd Cases, there was no Occasion for Suture, but the Wounds gradually united and healed in the same manner other Abscesses do.

If the Fœtus should be lodg'd in a certain uterine Hernia, which rarely happens, tho' it occur'd in the Case related by *Sennertus* and *Hildanus*; a sufficiently large Incision is to be made in the Hernia or Tumor itself, first thro' the Integuments, then thro' the Uterus, and, last of all, thro' the Membranes of the Fœtus. Then the Fœtus is to be extracted; and the Secundines are to be taken from the Uterus, which is to be replac'd in the Belly, either immediately, if it can be done, or a few Days after, when it becomes less by its Contraction. The other Steps to be taken are the same with those already directed. In the Case related by *Sennertus* and *Hildanus*, the Surgeon did not replace the Uterus, but immediately stitch'd up the Skin: Hence I believe it happen'd, that the Uterus could not afterwards be replac'd, but the Mother died a Month after, tho' the Fœtus was alive and sound. It had therefore been better to have omitted the Suture, and replac'd the Uterus in the Belly some Days after, when it had become less by Contraction; for by this means the Mother might have possibly been sav'd.

If Pieces of Bones belonging to a corrupted Fœtus seek a Passage by the *Intestinum Rectum*, and *Anus*, which they sometimes do, as is evident, not only from the Cases already mention'd, but also from one which happen'd a few Years ago in a neighbouring Village; upon such an Emergency, the Splinters which come not away spontaneously are to be extracted cautiously, either with a proper Hook or Forceps; and the Wound of the *Intestinum Rectum* is afterwards to be agglutinated with Balsamics. But these are Circumstances which do not properly belong to the *Cæsarean* Section. But if Cases of this Nature should occur, I advise the Surgeon to read and compare what has been advanc'd upon this Subject, by the above-quoted Authors, that he may at once be apprisd of the Variety of Cases of this kind, and qualified for treating them with the greater Skill and Judgment.

In the third Place, the *Cæsarean* Section is to be perform'd when the Mother and Fœtus are still alive, but at the same time the Fœtus, on account of some Impediments, can neither be born in the ordinary Manner, nor extracted, especially when a bad Conformation of Parts in the Mother prevents the Introduction of the Surgeon's Hand for her Relief. In this deplorable State of Things, both Mother and Fœtus must unavoidably perish, unless reliev'd by the Operation. Tho' in Cases of this Kind, many Physicians and Surgeons are too timorous, tho' many Women from a false Principle of Compassion, or mistaken Notions of Religion, condemn the Operation in these Circumstances as impious, tho' by it the Fœtus, or the Mother, and often both, might be preserv'd; yet I think it more prudent, and more agreeable to the Precepts of Christianity, to undertake the Operation, where no other Means of Relief can be found, than to destroy both Mother and Fœtus, for want of it; especially on Queens and Princesses, where the Peace and Safety of Kingdoms and Nations depend on the Production of a Successor, without which there would be an unavoidable Foundation laid for the most cruel Wars, Devastations of Cities, Robberies, Murder, and the Subversion of States; for, by this Operation seasonably undertaken, either the Mother, or the Fœtus, or both, but most frequently the Fœtus, is preserv'd. The Lives of a great Number of Soldiers are often expos'd in the Field of Battle for the Good of the State, without any Hesitation or Reserve; and, if Circumstances require it, why should not the Life of one Woman be risk'd for the same End? If therefore we think justly on the Point, we shall have Reason to condemn as cruel, barbarous, and inhuman, those very Physicians and Surgeons, who thro' mistaken Views either delay the Operation, or dissuade from it; especially when the Women themselves desire it should be perform'd.

Mauriceau, tho' a skilful Man-midwife, and an inveterate Enemy to the *Cæsarean* Section, yet gives an Instance of the Fœtus being preserv'd alive by it, tho' the Mother died; whereas, without it, both Mother and Child had unavoidably perish'd; for, upon the Principles of common Sense, it is far more eligible to save one, than to destroy both. The Operation is to be perform'd in the same manner, as when the Mother is alive, and the Fœtus dead; only greater Caution is to be used, lest, in opening the Uterus and Membranes, the Fœtus should be hurt or injur'd.

But, tho' I have only perform'd this Operation on dead Women, yet I am so fully apprisd of the Danger that attends it, that I am far from advising it in Cases where there is the least Probability of bringing the Fœtus away by the natural Passages. *Mauriceau*, and others, seem to think, that some Physicians advise the *Cæsarean* Section, where the Fœtus can be extracted thro' the common Passage; and, so far as I can understand, they seem to believe, that some Physicians prefer this Operation to the other gentle and natural Method. But 'tis scarce credible, that a prudent Physician or Surgeon

should either advise, or actually perform, the *Cæsarean* Section; which is so dangerous on a live Woman, when there is a Possibility of extracting the Fœtus thro' the Vagina, tho' it should only be brought away in Pieces, except in some particular Cases upon Queens or Princesses, where Interests of State, and the manifest Good of the Community, require it. Whenever it happens then, that the Fœtus, either on account of its unnatural Situation in the Womb, its excessive Bulk, especially that of the Head, the monstrous Conformation of its Body, or some other Cause, cannot be born, tho' at the same time it is contain'd in the Uterus, and when there is an evident Danger of the Mother's Death, as well as that of the Fœtus, in consequence of her Strength being exhausted; if on such Occasions there should arise a Dispute, whether, in order to preserve the Fœtus, the Operation should be perform'd on the Mother, or whether the Fœtus ought not rather to be extracted with Instruments, if it cannot otherwise be done; I think the Mother is to be preserv'd, and the Fœtus, even tho' alive, to be extracted by any Means. In this Sentiment I am supported by the Judgments of many Physicians, Surgeons, and Divines, who, in Cases of difficult Births, where 'tis impossible to save both Mother and Fœtus, lay it down as a Maxim, that the Life of the Mother is to be prefer'd to that of the Child; or, as they express it, the Tree before the Branch. I am also of Opinion with *Solingen* and *la Motte*, that if a Callus of the Vagina, or Mouth of the Womb, be the Cause why the Fœtus cannot be brought away, and if these Parts can be sufficiently dilated, either by Section or Dilaceration, that this latter Method should be prefer'd to the *Cæsarean* Section; because by this Method the Belly and the Uterus itself are left entire, and the Blood discharg'd flows all thro' the Vagina, but in the other Case is thrown into the Abdomen, and considerably endangers Life. Besides other Advantages attending this Method, the Wound is also more easily agglutinated in it than in the other. I also think, that when the Vagina is shut up by the Hymen, or any other Membrane, these are to be cut rather than the Belly and Uterus: But when the Vagina is cover'd with too large and hard a Callus to admit of a sufficient Dilatation, and especially where there is an originally bad Conformation of the Bones of the Pelvis, then the *Cæsarean* Section is to be had recourse to as the only Method of Relief.

In like manner, if, by the Pains and Efforts made during Labour, the Uterus should be broken, and the Fœtus slip into the Cavity of the Belly, as sometimes happens, the Belly is in this Case to be laid open, since without such an Operation the Fœtus could not be extracted, and consequently neither it nor the Mother preserv'd. It may be known by the following Signs, when this happens to be the Case: If violent Pains, by which the Child is not forc'd into the World, are remitted, or cease all of a sudden, the Mouth of the Uterus in the mean time not being open, or at least not sufficiently open for the Purpose; a Circumstance which denotes the preternatural Situation of the Child; if a certain Rupture or Fragor is perceiv'd in the Belly; if a Shivering succeeds; if a large Tumor afterwards appears, and the Fœtus is perceiv'd to be situated higher in the Belly than before; if the Parts or Members of the Fœtus are more distinctly felt than when it was in the Uterus, especially if it is felt in either of the Hypochondria, with Pains in another Part of the Belly than before; as also, if the Patient is seiz'd with fainting Fits, convulsive Motions, or perhaps Alienation of Mind. When these Symptoms attend a difficult Birth, when no Part of the Fœtus appears externally, and when, upon passing the Finger thro' the Vagina, it is not found to press so strongly on the Mouth of the Uterus, we may conclude, that the Uterus is burst, and the Fœtus slip into the Cavity of the Abdomen. If this should happen to be the Case, the Belly of the Mother is to be open'd in the most prominent Part, where the Child is found to be lodg'd, with a View to save the Lives, if not of both, yet at least of the Fœtus. When the Arm hangs out of the Rupture of the Uterus, 'tis a bad Symptom, and a Cure is in this Case very difficult, if not impossible; however, we must prognosticate from the concomitant Symptoms. I am surpris'd, that the Physicians and Surgeons belonging to the *Strasbourg* Hospital, in which a Patient had been in Labour for five Days, and whose Case is recorded by *Pistor*, should have delay'd laying her open, since even during her Life they had the most manifest and incontestable Proofs, that the Uterus was burst; or, if they were afraid to perform the Operation on a live Woman, why did they not lay open her Belly after her Death, in order, if possible, to save the Life of the Fœtus? The Case of *Saviard* is also worthy of our Attention, when in the *Hôtel Dieu* the Fœtus, in consequence of a Rupture of the Uterus, had fallen into the Abdomen, the Secundines in the mean time hanging out of the Vagina. This he knew to be the Case, as he himself informs us, by introducing his Hand into the Uterus by the Navel-string. Notwithstanding these Circumstances, he did not open the Woman alive, in order to save

the Child, and perhaps the Mother too, but suffer'd them to die together.

If the Fœtus should happen to be generated in the Cavity of the Belly, and not in the Uterus, (a rare Case) which may be known from the preceding general Signs of Pregnancy, from the Fœtus being situated higher in the Belly than is usual, and from the Mouth of the Uterus being closed at the expected Time of Delivery, even when there are Pains, and some other Symptoms already mentioned; in this Case the Cæsarean Section ought to be performed, because the Fœtus cannot otherwise be preserved; and, besides, the Mother is in less imminent Danger, because there is no Necessity for making an Incision in the Uterus. Sometimes, in difficult Labours, the Uterus is burst in such a manner, that not the whole Fœtus, but only some Part of it, falls into the Abdomen, the rest remaining in the Uterus. The Arm, for Instance, may hang out of the Vagina, whilst the Head or Feet are fallen through the Rupture of the Uterus into the Cavity of the Abdomen; in this Case the Cæsarean Section is not necessary. Thus I myself found the Arms of a Fœtus out of the Uterus, whilst the Head was in the Abdomen, and the rest of the Body in the Uterus. *Albinus* and *La Motte* saw a Case, in which the Head of the Fœtus was duly lodg'd in the Vagina, whilst its Feet had perforated the Uterus, and stuck in the Belly near the Diaphragm. Another Case they make mention of, where the Arm was hanging out of the Vagina, whilst the Feet were in the Abdomen. In both Cases the Patients were excessively weak. *La Motte* brought away the Fœtuses in the natural manner; but both Mothers died a few Days after. But an Instance directly opposite to these was told me by *Rungius*, a Surgeon of *Bremen*, in which, after having brought away the Fœtus, though, through the Rupture of the Uterus, he plainly felt the Intestines of the Patient, and with his Hand kept them for some time from rushing into the Uterus till it contracted itself, yet the Patient happily recover'd.

But I must not forget to make mention of the Difference between *Hysterotomy*, and what is commonly called *Embryuleia*; or between extracting the Fœtus, especially if unnaturally situated, from the Uterus, through the natural Passage, and cutting it out, by making an Incision in the Belly and Uterus; because often by the Vulgar, and even, which is more surprising, by some of the Learned, as also by Physicians themselves, these two Operations are confounded, and taken for each other, tho' nothing can be more different; for when the Fœtus is extracted from any Woman, nothing is more ordinary than to say, that her Child has been cut from her, though there was no manner of Section made, either on the Belly or the Uterus; but only the Child, on account of its unnatural Position, or its excessive Bulk, has been brought away by the Vagina, either by the Hands of the Surgeon, or some proper Instruments. This Operation, therefore, by which the Fœtus is extracted through the natural Passage, is called *Embryuleia*; but that whereby it is cut from the Belly *Hysterotomy*, or the *Cæsarean Section*. And if in this Sense *Embryuleia*, or the Extraction of the Fœtus through the natural Passage, is falsely taken for *Hysterotomy*, it is, perhaps, in some measure, true, which is advanced by *Scipio Mercurius*, "That Extraction of the Fœtus was, in his Time, as customary in *France*, as Venesection in *Italy* for "Head-achs." Thus, when I was lately perusing the Observations of *Franciscus Valleriola*, I found one, concerning Mothers, who were happily cured, and lived after the Fœtus had been cut from them by the Hand of the Surgeon. I expected to find many remarkable Instances of the Cæsarean Section being happily and successfully performed, and perhaps a particular Method of performing it, not mentioned by others. But after I had run over the whole Observation, I found, indeed, several Cases where the Fœtus had been extracted by Hooks, or the Hand of the Surgeon; but not a single Instance of the true Cæsarean Section being once performed. So that 'tis plain, that not only the Vulgar, but also learned Men and Physicians, have often mistaken one of these Operations for the other, as did also *C. Baubine*, though they differ very widely from each other. But by this unjust and inaccurate Way of speaking, a false Horror is often excited in Patients, as if the Belly was to be laid open, so soon as the Surgeon applies his Hand, in order to assist in a difficult Birth, though he sometimes performs his Business, without creating much Pain to the Patient.

As the monstrous Fœtuses, with two Heads, or two Bodies, cannot, for the most part, be born entire, without performing the Cæsarean Section on their Mothers, 'tis disputed whether, for their sakes, the Cæsarean Operation ought to be performed, and the Life of the Mother thereby exposed to imminent Danger; or whether the Fœtus, if it cannot be had entire, ought not rather to be cut in Pieces, and brought away piece-meal, through the natural Passages. In this Case, because these Monsters are either not alive, or, for the most part, horrid and useless Loads and Incumbrances to the Earth, I think the Mother is to be spared, and the monstrous Fœtus to be extracted by Instruments of whatever Kind. *Melli*, a late Italian Writer, condemns the Cæsarean Section on a living Mother;

and not sufficiently viewing the several Reasons that may induce to this Operation, he inconsiderately asks, whether, for the sake of a Monster, the Life of the Mother ought to be exposed to the greatest Danger; but for this very Reason he justly advises, that the Monster should be brought away by any means, thro' the natural Passage. But since there are other Cases which require this Operation, where the Fœtus cannot be brought away through the natural Passages, I think it cannot, with a safe Conscience, be neglected, as I have already shewn.

If the Head of the Fœtus, either by its own Largeness, or the Narrowness of the natural Passage, sticks in the internal Mouth of the Uterus, or in the Vagina; if from its long Continuance there the Fœtus dies, which generally happens in three Days, though it sometimes lives longer; and, in consequence of this Accident, the Lives both of the Mother and Fœtus are exposed to imminent Danger, because the Hand of the Surgeon can neither be introduced to alter the Position, nor the Fœtus expel'd; this is justly look'd upon as the most difficult and important Case in Midwifery. As the Head of the Fœtus cannot be held, in consequence of its Slipperiness, and the Narrowness of the Passage, as the Hand cannot be introduced to alter its Position in the Uterus, and as no Instrument can lay hold of it without killing the Fœtus, it is by some made a Question, whether the Cæsarean Section ought to be performed, in order to preserve the Fœtus; for unless the Child is quickly relieved from this Imprisonment, it must not only die very soon, but the Life of the Mother must be exposed to certain Danger; so that with *La Motte*, and *Sigismunda*, I must own this to be at once the most deplorable and intricate Case that can possibly occur to a Surgeon. 'Tis the Opinion of most of the above-mentioned Authors, that neither the Cæsarean Section ought to be performed, nor the Child dismember'd, whilst either Mother or Fœtus are alive; but, with the superstitious Casuists of the Roman Church, they are for allowing both to perish, rather than for preserving one at the Expence of the other. In this Case they absolutely condemn the Cæsarean Section, notwithstanding the many Instances recorded of both Mother and Fœtus surviving the Operation, which, we are told, by *Roonhuys*, was performed seven times by *Sonnus*, a Physician at *Bruges*, upon his own Wife, and both Mother and Fœtus were preserved each time. The celebrated *Olaus Rudbeck* is also said to have performed the Operation with Success on his own Wife; the Fœtus also surviving. *Heister's Surgery*.

In the Case last-mentioned, there is no Possibility of a Necessity for the Cæsarean Section. The Methods of extracting the Fœtus under these Circumstances are specify'd in the proper Place.

Heister proceeds to inform us, that, in his Opinion, it is both prudent and lawful to bring the Fœtus away, in order to save the Mother's Life, though it should not be really dead. It, however, requires great Judgment to determine when this is to be attempted, and when not; though, to speak Truth, there seldom can be any Necessity of destroying the Child in this Situation.

There is something extremely ridiculous, in the Advice given by several Medicinal Authors, of the Catholic Religion, as well as Divines, which is, to baptize the Child in the Womb, by the Help of a Syringe, when any Danger is apprehended of its dying in the Birth; as if it was worth while to keep the Mother in Torture a single Instant, for fear the Supreme Being should punish the Child for the Omission or Crime committed by the Midwife, whether Physician, or old Woman. With whatever good Intent such Fooleries were originally introduced, I am afraid, that the Interests both of Religion and Physic are not much promoted by them.

CÆSIUS. A Colour frequently apply'd by Medicinal Authors to the Eyes, and to the Excrements, as the Urine. It is the same as **GLAUCUS**, which see.

CAFA, CAF, CAFAR. Camphire. *Rulandus. Johnson.*

CAFFE. See **COFFEE**. *Caffè* seems to be the right Word; but as *Coffee* is more in Use amongst us, I chuse to refer this Article thither.

CAGASTRUM. A Term used by *Paracelsus* to signify the morbid Seed, which is not innate or hereditary, but adventitious from Corruption; and, upon that Account, distinguished from the *Iliastrum*. Diseases from the *Cagastrium* are the Pleurisy, Pestilence, Fever, and the like. *Paracelsus Labyrinth. Med.*

CAHOS. A Term in *Paracelsus*, by which he intends not only the universal Mass, or *Chaos*, but the Air, and the *Iliastrum*. *Johnson.* See **ILIADUS**.

CAJACIA. The same as **CAACICA**, which see.

CAJAHABA. An Indian Plant, which adheres to Trees like Ivy. The Natives bruise it, and bind it upon Fractures. *Raii Hist. Plant.*

CAJAN *Arbor Indica, foliis trifolii bituminosi, siliquis orobi*, Breyn. Prod. *Phaseolus Arbor Indica incana, siliquis torosis*, *Kayan dista Thora Parrou*, W. M. *Pisum arborescens quibusdam*.

It

It is a shrubby Plant, bearing Pods which contain four reddish Peas, which are good to eat. An Apozem of the Leaves restrains the immoderate Flux of the Hæmorrhoids. The Leaves bruised with Pepper cleanse the Gums, and ease the Tooth-ach. The Seeds boiled in the Washings of Rice, and made into a Liniment with Butter, are a Relief to painful Laxitudes of the Joints; and they prepare of the same a wholesome Liquor against the Small-pox. *Raii Hist. Plant.*

CAJEPUTI OLEUM. An aromatic Oil, imported from the *East-Indies* into some Parts of *Europe*. It is mentioned by *Hoffman* in his *Observationes Physico-chymicæ*, L. 1. Obs. 4. But he does not tell us from what Plant it is procur'd.

CAINITO, [this is the *American* Name by which the *Indians* called this Tree, according to *Oviedo*] Star-Apple, *vulgo*. It hath an open Bell-shap'd Flower, consisting of one Leaf, and cut into several Segments towards the Top, from whose Cup arises a Pointal, which afterwards becomes a globular or Olive-shaped, soft, fleshy Fruit, inclosing a Stone of the same Shape. *Miller* reckons but two Species of this Tree, which are the Star-apple *vulgo*, and the *Cainito* with Olive-shaped Fruit. I find no medicinal Virtues ascribed to it.

CAJOUS. See **ACAJAIBA**.

CAIRION, *καίριον*, in *Hippocrates*, signifies mortal, or very dangerous. Thus *Lib. de Art. καίριοι πληγαὶ αἰ κρησφίτιδες*, "Wounds in the Temples are very dangerous, or deadly." The Word is used in the same Sense by *Homer*, as *Iliad* 8th, (Verse 84. and 326.) *μάλιστα δὲ καίριόν ἐστι*, "is most mortal." He speaks of the Top of a Horse's Head, where a Wound is most dangerous or deadly.

CAIROS, *καίρος*, in the same Author, signifies the Season and Opportunity for doing a thing; as *Aph. 1. Lib. 1. καίρος δέξυς*, "Opportunity is fleeting;" and the same Sense it bears in many other Places.

Καίροι also signifies the proper Seasons and Opportunities for taking of Remedies; as *καίρους μὲν τοιάσδε ἔχει*, "the proper Seasons for using it are as follow;" where *Galen*, on the Place, says, *τὰς καίρους ἵτοι, &c.* "He (*Hippocrates*) speaks of the proper Seasons of Use, according to Custom, or the proper Seasons for receiving Benefit; for in this latter Sense he sometimes uses the Word *καίρος*, as I have shewn." Sometimes *καίρος* means the same as *τὸ προσήκον*, "convenient." Thus, *Lib. de Rat. Viñ. in Morb. acut. ἐστὶ δὲ ὅτε κατὰ κορυφὰς μᾶλλον τῶ καίρῳ καὶ ἀφροδισίῳ*, "sometimes they (the Excrements) are deeper ting'd, and more frothy, than is convenient, or than might be suspected." So also in another Place of the same, where *Galen* observes, that *μᾶλλον τῶ καίρῳ* is put *ἀντὶ τῶ μᾶλλον προσήκοντι*, "instead of more than convenient."

Καίροι also signify the Times or Stages of Diseases, universal and particular, the different Ages of human Life, and the Seasons of the Year.

CAKILE. A Name for the *FRUCA MARINA*, which see.

CAL. Yellow Arsenic; also Vinegar. *Rulandus. Johnson.*

CALABA, *Indian* Mastich-tree.

It has a rosaceous Flower, consisting of several Petals, which are placed in a circular Order, from whose Flower-cup arises the Pointal, which afterwards becomes a spherical, fleshy Fruit, including a Nut of the same Form.

This Tree grows to a great Magnitude in the warm Parts of *America*, where it is a Native. From the Trunk and Branches issues out a clear Gum, somewhat like Mastich, from whence it received its Name, the Gum being used in those Countries as Mastich.

CALAE, *Calaëm*, *Calaënum*. A kind of *Indian* Tin, which being subjected to the Fire, is transmuted into a kind of Cerufs, such as is made of Lead and *European* Tin.

CALAF. See **CALLAF**.

CALAMAGROSTIS, **CALAMOGROSTIS**, from *καλαμῶς*, a Reed, and *ἀγροστis*, *Agrostis*. A reedy kind of Grass. *Blancard.* See **ARUNDO**.

CALAMBAC. A Name for the *Lignum AGALLOCHUM*, which see.

CALAMBOUR. See **AGALLOCHUM**.

CALAMEDON, *καλαμίδον*, from *καλαμῶς*, a Reed. A Species of Fracture, which runs along the Bone in a Right Line, but is lunated at the Extremity. It is otherwise called *ἡ σφυρα*.

CALAMINA. *Lapis Calaminaris.* *Johnson.*

CALAMINARIS (*Lapis*). See **CADMIA**.

CALAMINTHA.

Calamintha montana, Offic. *Calamintha*, Chab. 417. *Calamintha vulgaris*, Park. Theat. 36. *Raii Hist.* 1. 569. Synop. 3. 243. *Calamintha vulgaris officinarum*, Ger. Emac. 687. Mer. Pin. 18. *Calamintha vulgaris vel officinarum Germanicæ*, C. B. Pin. 228. Tourn. Inst. 194. Elem. Bot. 169. Boerh. Ind. A. 175. Rupp. Flor. Jen. 187. Volck. Flor. Nor. 75. *Calamintha montana vulgaris*, Hist. Oxon. 3. 413. Merc. Bot. 1. 25. Phyt. Brit. 19. *Calamintha flore magno, vulgaris*, J. B. 3. 228. **CALAMINT.** *Dale.*

The Stalks of this *Calamint* grow to be a Foot high, hairy,

and four-square, having at each Joint two broad, somewhat roundish, Leaves, hairy, and a little indented about the Edges, scarce an Inch long, and about the same Breadth. The Flowers grow upon the upper Part of the Branches, on each Side the Stalks, but few in Number, several growing on one common Foot-stalk; besides which, they have each a shorter of their own; they grow in long hairy Calyces, and are of a pale-purple Colour, labiated and galeated; and are succeeded each by four small Seeds, lying at the Bottom of the Calyx. The Root is small and fibrous. The Leaves and Flowers have a pleasant aromatic Smell, somewhat like wild Mint. We have two Species of this *Calamint*, whereof one has Flowers almost as big as the other. They are both found together by Hedges, and Highway Sides, especially in *Kent*; and flower in *June* and *July*.

This Plant is full of an aromatic, oily, volatile Salt. It is stomachic, diuretic, aperitive, and provokes the Menses. It must be used after the manner of Tea. The Decoction of it, given in a Clyster, asswages the Colic, resolves œdematous Tumors, and strengthens the Parts. *Martyn's Tournefort.*

This Herb probably has its Name from the two *Greek* Words *καλὰ μίνθη*, which signify good Mint; for the *Calamintha vulgaris*, or common *Calamint*, not only agrees with Mint in its Virtues, but also resembles it pretty much in Smell. *Calamint* is an aromatic Herb, which, by the grateful Fragrance of its Effluvia, rouses the Spirits, and gently warms the Nerves of him who smells it. What grows in the Mountains has not only a more agreeable Smell, but is also thought more proper for medicinal Purposes, than what is produced elsewhere. The Antients extol'd it for its heating, alexipharmac, resolvent, and discutient Qualities; and prescrib'd not only the external, but also the internal, Use of it, asserting, that it kill'd Worms. It is an Ingredient in the *Theriaca*, and such other Preparations, as go under the general Name of Antidotes. Internally, it is most properly used in Infusions, in Cases where a Stimulus is required. It is proper for phlegmatic Constitutions, and such as are afflicted with Flatulencies; but it is principally conducive to the Relief of Women labouring under Obstructions of the Uterus, a violent *Flux albus*, or a catarrhus Disorder of the Womb. According to *Etmuller*, it is so powerful a Provoker of the Menses, that it even excites them in Women big with Child, and kills the Fœtus. It is also said to expel the Lochia, Secundines, and Fœtus. It is an excellent and a mild Diuretic, cleanses Ulcers of the Kidneys, and cures Discharges of bloody Urine. In Asthmas and Orthopnoæas, whether arising from a Defect of the Stomach, or Ulcers of the Lungs, it is of excellent Service, if boiled with Oxymel. But it ought not to be exhibited to such as have no Occasion for an additional Stimulus; for it acts by producing a Heat, which, though small, is nevertheless often found prejudicial to the Asthmatic, to such as discharge a bloody Urine; nor will it always agree in Ulcerations of the Lungs. But where the languid and relaxed Fibres are to be stimulated, or the sluggish Humours roused into a brisker Motion, *Calamint* will be found of singular Use and Importance; and, upon these Considerations, it is justly rank'd among the several Classes of cordial, alexipharmac, stomachic, carminative, uterine, and emmenagogue Medicines; for this Reason 'tis also used in Clysters, Cataplasms, Fomentations, and such Baths as are intended for the Purposes of Resolution, Discussion, and provoking the Menses. An Ounce, or an Ounce and an half, of the distil'd Water of *Calamint*, may be given for the same Intentions with the Herb itself; but 'tis rarely used, on account of its ungrateful Taste. The *Syrupus de Calamintha* of *Mesue*, in the *Pharmac. August.* together with *Calamint*, consists of other Aromatics, and Raisons, with which, after they are boiled in Water, Honey is mixed. This Syrup, being of an aperient Quality, is recommended in Obstructions of the Viscera; and its Dose may be an Ounce and an half. Besides this Syrup, there are other two Preparations of *Calamint*, in *Mesue*. The Species *Diacalaminthæ*, of the *Brandenburg Disp.* and of the *London Pharmacop.* are in the *Pharmac. August.* ascribed to *Galen*; and in the *Pharmac. Antwerp.* call'd *Diacalaminthum Galeni*. They are, indeed, Compositions, differing in the Proportions of their Ingredients, but agree in this, that they consist almost of the same Aromatics, or at least Aromatics of the same Virtues, pounded with *Calamint*, as are required for preparing the *Electuarium de Calamintha*; in which Case they receive an Addition of a sufficient Quantity of Honey, or dissolved Sugar. This Medicine is, by *Galen*, highly extol'd in many Passages of his Works, not only as serviceable to the Stomach and Intestines, but also as useful in provoking Urine and the Menses; and curing chronic Diseases, by correcting the Chyle, and consequently purifying the Blood. But our Descriptions of this Medicine differ from that of *Galen*, the Copies of whose Works seem to be corrupted in this Particular, since they require an excessive Quantity of Pepper. I do not doubt, but the continued Use of this Medicine may be of some Service to old Men, and to phlegmatic and pituitous Constitutions. These Species to me appear pretty much to resemble the *Pulvis Ari composuit*. One Scruple may be given for a Dose. *Schulz. Prælect.* What in *Leмери's*

Lemery's Pharmacop. is call'd *Pulvis Diacalaminthes Nicolai Alexandrini* has a smaller Quantity of Pepper; for which Reason two Scruples of it may be given for a Dose. The *Species Diacalaminthes Mesuae*, in the *Pharmac. August.* by *Mesue* call'd *Diacalamintum Descriptione Galeni*, differs very little from those above-mention'd.

There is another Species of Calamint call'd

CALAMINTHA MAGNO FLORE, Cod. Med. 24. Hist. Oxon. 3. 412. C. B. Pin. 229. Tourn. Inst. 194. Elem. Bot. 165. Boerh. Ind. A. 175. *Calamintha montana præstantior*, THE MORE EXCELLENT CALAMINT, Ger. 556. Emac. 687. THE GREATEST CALAMINT, OR MOUNTAIN-MINT, Park. Theat. 37. MOUNTAIN-CALAMINT, WITH A LARGE FLOWER, Raii Hist. 1. 569. *Calamintha montana, flore magno ex calyce longo*, J. B. 3. 229. *Calamintha montana, flore magno ex calyce magno*, Chab. 416. MOUNTAIN CALAMINT.

This Plant is of a sweet and grateful Smell, and is cultivated in the Gardens of some, not only on this Account, but also because this Sort is recommended for the *Theriaca*. In its other Virtues it agrees with the *Calamintha vulgaris*.

Another Species of Calamint is the

CALAMINTHA, Offic. *Calamintha odore Pulegii*, Ger. Emac. 687. Raii Hist. 1. 569. Synop. 3. 243. Mer. Pin. 18. *Calamintha flore minore, odore Pulegii*, J. B. 3. 229. Chab. 416. Hist. Oxon. 3. 413. *Calamintha altera, odore Pulegii, foliis maculosis*, SPOTTED CALAMINT, Park. Theat. 36. *Calamintha Pulegii odore seu Nepeta*, C. B. Pin. 228. Tourn. Inst. 194. Elem. Bot. 169. Boerh. Ind. A. 175. Rupp. Flor. Jen. 188. *Calamintha Pulegii odore, Nepeta vera Antiquorum*, Merc. Bot. 1. 25. Phyt. Brit. 19. FIELD CALAMINT.

This Calamint somewhat resembles the *Calamintha montana*; but the Difference between them is, that the Branches of this Sort incline more to the Ground; the Leaves are smaller, and not so broad, but more triangular. The Flowers are much alike; and the Smell comes pretty near that of Penroyal. It grows in the like Places with the *Calamintha montana*; but flowers rather later.

This agrees with the *Calamintha montana* in its Virtues, especially as to the opening, deobstruent Qualities, and they are used promiscuously: But this Species being to be had in greater Plenty than the mountain Sort, the Apothecaries Shops are mostly supplied with it. *Miller's Bot. Off.*

This Plant is of a more acrimonious Nature than the *Calamintha vulgaris*, or common Calamint. When bruised, and applied to any Part of the Body, it acts like a Veficatory; for which Reason it is by some used for removing rheumatic Pains. Others boil the Plant in Water, and apply it, by way of Cataplasm, for the same Purpose, in which Case it acts more mildly. This same Cataplasm is of Use for resolving Tumors, and preventing Anchyloses.

CALAMINTHA PALUSTRIS, Offic. *Calamintha aquatica*, Ger. Emac. 684. Merc. Bot. 1. 25. Phyt. Brit. 18. Mer. Pin. 18. WATER CALAMINT, WITH WHORLED CORONETS, Raii Hist. 1. 530. *Calamintha arvensis verticillata*, C. P. Pin. 229. *Calamintha arvensis verticillata sive aquatica Belgarum, Lobelio*, FIELD CALAMINT, WITH WHORLED CORONETS, Park. Theat. 36. *Mentha seu Calamintha aquatica*, Raii Synop. 3. 232. *Mentha arvensis verticillata hirsuta*, J. B. 3. 217. Chab. 413. Hist. Oxon. 3. 369. Tourn. Inst. 189. Boerh. Ind. A. 185. Dill. Cat. Giff. 145. Rupp. Flor. Jen. 185. Buxb. 213. *Mentha alba Officinarum*, Volck. Flo. Nor. 287. WATER CALAMINT.

Dale imagines this to be the *Polynemon* (πολυκνήμων) of *Dioscorides*.

This Calamint, or rather Water-mint, grows to be about a Foot high, or more; with square and somewhat hairy Stalks, on which, at every Joint, are set two Leaves, opposite, on short foot-stalks, roundish, sharp-pointed, larger and longer than the common Calamint, indented about the Edges. The Flowers grow in very thick Whorles, with the Leaves on the upper Part of the Stalks; they are labiated and galeated, being small and purple. The Roots are small, slender, and creeping. The whole Plant has a strong Smell, like Water-mint. It grows in moist Places, and where Water has stagnated in Winter; and flowers in June.

As the Scent of this Plant comes near Penroyal, or the second Calamint, so it is concluded to partake of their Qualities. This is very rarely used. *Miller's Bot. Off.*

CALAMINTHA INCANA, *ecymi foliis*, B. *Calamintha folio & flore parvo, incana*. Hoary Calamint, with Leaves like Basil.

This Species is possess'd of the same Virtues with the *Calamintha magno flore*, or Mountain Calamint, with a large Flower.

Tournefort calls the *Hedera terrestris* by the Name of *Calamintha humilior, folio rotundiore*.

Some few other Calamins are taken Notice of by *Boerhaave*, as the

Calamintha Hispanica frutescens, mari folio, T. 194. *Satureia Hispanica frutescens, mari folio*, Elem. de Botan. H. R. D.

Calamintha montana præalta, Pulegii odore, dentatis foliis; floribus dilute cæruleis, ex longo ramoso brachiato pedunculo prodeuntibus, Bocc. Mus. 2. 45.

Calamintha præalta, pulegii odore, Ejusd. T. 40.

Calamintha præalta, pulegii odore, Icon. Altera ex Sabaudia.

CALAMITA. An Appellation for the dry sort of *Styrax*; to distinguish it from the liquid. See *STYRAX*.

CALAMITAS, ἀποτυχία, from ἀποτυχάνω, to be disappointed or unprosperous, signifies any calamitous or unfortunate Event. Thus the Word ἀποτυχία is used by *Galen*, Comm. 2. in R. V. I. A. and applied to the Effects of Cathartics; and *Calamitas* by *Scribonius Largus*, N^o. 231.

CALAMITIS, καλαμίτις. An Appellation of that sort of fictitious *Cadmia*, which, by adhering to Iron Rods, acquires the Figure of a Reed; but the Word is used to express either *Pompholyx*, or *Lapis Calaminaris*. *Agricola* also gives this Name to a marine stony Plant, from its Form.

CALAMOCHNUS. A Name for the *ADARCES*, which see.

CALAMUS. The Reed, of which the following Species are omitted under the Article *ARUNDO*.

ARUNDO FARCTA ATRO-RUBENS, Offic. *Arundo farcta maxima atro-rubens*, C. B. Pin. 17. Theat. 274. Raii Hist. 2. 1286. Hist. Oxon. 3. 220. *Arundo nastos sive farcta, crassa & major*, J. B. 2. 487. *Arundo nastos sive farcta, crassa & major, Calamus Toxicus Theophrasti*, Chab. 193. *Arundo farcta decima*, Park. Theat. 1210. *Nastos Clusii*, Ger. 34. Emac. 37. THE WALKING-CANE.

It is brought from India and Syria. Dale.

ARUNDO FARCTA FLAVA, Offic. C. B. Pin. 17. Theat. 277. Raii Hist. 2. 1277. Hist. Oxon. 3. 221. *Arundo farcta*, Ger. 33. Emac. 37. *Arundo farcta nona*, Park. Theat. 1210. *Arundo nastos sive farcta, seu toxica, & gracilis plicatilis*, J. B. 2. 487. *Arundo nastos, seu farcta, sive toxica gracilis & plicatilis Indica*, Chab. 193. THE DART-WEED.

It is brought from Syria. Dale.

ARUNDO FARCTA INDICA, Offic. *Arundo farcta Indiæ Orientalis sanguinem Draconis manans*, Hist. Oxon. 3. 220. Raii Hist. 3. 615. THE DRAGON'S-BLOOD CANE.

It grows in the East-Indies. The Juice of the Fruit is call'd *DRAGON'S-BLOOD IN DROPS*.

The Method of making this sort of Dragon's-blood is to macerate the Fruit in warm Water, till the red Matter subsides to the Bottom of the Vessel; then the Water is either evaporated, or pour'd off, and the red Substance remains concentered in the Vessel. Of this the Chinese are said to make an excellent Varnish. Dale. See *SANGUIS DRACONIS*.

CALAMUS AROMATICUS. See *ACORUS VERUS*.

CALAMUS ASIATICUS. See *ACORUS ASIATICUS*.

CALAMUS ODORATUS, Offic. κάλαμος, Diosc. *Calamus Aromaticus*, Chab. 199. *Calamus Aromaticus verus quibusdam*, J. B. 2. 528. *Calamus Aromaticus Syriacus*, C. B. Pin. 17. Theat. 255. *Calamus Aromaticus Matthioli*, MATTHIOLUS'S AROMATICAL REED, Park. Theat. 138. *Arundo Syriaca aromatica, foliis ex adverso sitis*, Hist. Oxon. 3. 221. *Calamus odoratus*, Camel. Syllab. 22. AROMATIC REED. Dale.

Some imagine this to be the true *Calamus Aromaticus* of *Dioscorides*, of which he gives the following Account.

It grows in India; and the best is of a tawny Colour, full of Joints, and, when broken, flies abroad into many thin Splinters, has its Cavity full of Cobwebs, is of a whitish Colour, and, being chew'd, is of a viscous, astringent, and somewhat acrimonious Taste.

Calamus Aromaticus, taken in a Potion, provokes Urine; for which Reason, being boiled with Couch-grass, or the Seeds of Smallage, and the Decoction drank, it is good for the Dropsy, Disorders of the Kidneys, the Strangury, and Ruptures: Drank, or used as a Pessary, it provokes the Menstrues. The Smoak thereof, either alone, or mix'd with Refin of Turpentine, received into the Mouth through a Reed, cures a Cough. The Decoction is used for Infections, and in Clysters. The *Calamus* is also an Ingredient in Malagmas; and serves to give a Fragrancy to Suffumigations. *Dioscorides*, Lib. 1. Cap. 17.

The true *Calamus*, or rather the bitter *Calamus*, is a Reed the Thickness of a Quill, of two or three Foot high, composed of Joints; from whence grow green Leaves, and little Clusters of yellow Flowers. This little Reed grows in several Parts of the Levant, from whence it is brought, sometimes whole, but generally in small Bags of about half a Foot long. Choose the largest which is fresh, cleansed from the small Root and the Branches, and made up in Bags. It is of a brownish Red without, and whitish within, furnish'd with a white Pith, which when it is stale, the said Pith will turn yellow; and after the Reed is broke, and you put it into your Mouth, it has an intolerable Bitterness. It is chiefly used for Venice Treacle. *Pomet*.

CALANDRA,

CALANDRA, *Chalandra*; καλανδρα. A large sort of Lark, reckon'd among the most wholesome Foods. *Aldrovand. Ornith.*

CALATIÆ, from *Caleo*. Wanton and shameless Persons. *Johnson.*

CALAZIA. A precious Stone, with Spots like Hail. *Johnson.*

CALBIANUM. The Name of a Plaister in *Myrepsus*, *Sec. 10. Cap. 29.*

CALCADINUM, *Calcatar*, *Colcotar*. Red Ink, Vitriol. *Rulandus.*

CALCADIS. White Vitriol, or, according to others, Sal Alkali. *Ruland. Johnson.*

CALCANEUM.

The Calcaneum, or Os Calcis, is the largest Bone of the Foot, of which it makes the posterior Part, and, in some measure, the Basis. It is oblong, and very irregular, and may be divided into a Body, and two Apophyses, one great and anterior, the other small, lateral, and internal.

The Body of the Os Calcis has six Sides, one posterior, one anterior, one superior, one inferior, and two lateral.

The posterior Side is broad, unequally convex, and, as it were, divided into two Portions; one superior, small, and polish'd; the other inferior, much larger, unequal, and rough, which, in Children, is an Epiphysis, and may be named the Tuberosity of the Os Calcis. The lower Part of it is bent downward, and terminates in two Tubercles, or obtuse Points, which belong rather to the inferior than to the posterior Side of the Bone.

The upper Side may be divided into two Parts, one posterior and unequal, having a small Depression; the other anterior, convex, and cartilaginous, proportion'd to the great inferior Cavity of the *Astragalus*. This Side is turn'd obliquely forward, and by this Obliquity becomes Part of the fore Side, the remaining Part of which is lost in the anterior Apophysis.

The lower Side is narrow, and behind it lie the two Tubercles, of which the internal is the biggest. They both serve for the Insertion of the Aponeurosis in the Sole of the Foot, but principally the biggest.

The two lateral Sides are continued over the anterior Apophysis. The external is gently convex and unequal, cover'd only by the common Integuments and Ligaments. The internal is hollow'd and depress'd.

The great or anterior Apophysis lies in the same Direction with the Body, being a Continuation thereof. It has five Sides, or remarkable Parts; and, were it not for the Body, it would have a sixth.

The upper Side has an irregular and unequal Depression, which, together with that in the Apophysis of the *Astragalus*, forms a considerable Fossula. At its anterior Extremity there is a small cartilaginous Surface, answering to one of those in the Apophysis of the *Astragalus*.

The anterior Side of the Apophysis is broad, oblique, cartilaginous, partly convex, and partly concave, and articulated with a little Surface of the Os *Cuboides*. This is the fore Side of the whole Os *Calcis*, when considered without any Division.

The Outside of the Apophysis is very rough, being a Continuation of the outer Side of the Body, with a Tubercle or Eminence at the Place where these two Sides meet, which, however, is not found in all Subjects. On the lower Part of this Tubercle is a cartilaginous Surface, for the Passage of the Tendon of the *Peronæus Longus*: Sometimes we see only some small Vestiges of this Eminence, and often none at all. We sometimes meet with another small cartilaginous Surface lower down, and more forward, near the anterior Extremity of the Apophysis, for the Passage of the same Tendon. The lower Side is a Tuberosity, continued from the Side of the Body, and designed for the Insertion of Muscles.

The lateral Apophysis is almost common to the Body, and to the great anterior Apophysis, and increases the Cavity on the Inside of the Os *Calcis*. On its upper Part it has a very smooth cartilaginous Surface, articulated with one of the inferior Surfaces of the *Astragalus*. This Apophysis is very low down, and its inferior Part is smooth for the Passage of Tendons.

The Os *Calcis* has four Cartilages, of which three are superior, one large, and two small, for its triple Articulation with the *Astragalus*; the fourth is anterior, for the Os *Cuboides*. To these must be added a small thin Cartilage, of a kind of ligamentary Substance, under the Tubercle on the Outside of this Bone. *Winslow.*

The large Tendon, call'd the *Tendo Achillis*, is inserted into this Bone.

CALCANTHOS, *Calcanthum*, in *Rulandus*, are put for *Chalcanthum*, the same as *VITRIOLUM*, which see.

CALCANTUM. A kind of Ink. *Rulandus.*

CALCAR. The same as *CALCANUM*, which see.

CALCARIA. A sort of calcining Furnace in Glass-houses, which is useful in making of Glass-work. *Castellus.*

The Calcar, or Fornax *Calcaria*, is made in the manner of

an Oven; ten Foot long; and seven broad, where widest, and two Foot deep. On one Side thereof they have a Trench about six Inches square, the upper Part whereof is level with the Surface of the Calcar, separated only from it at the Mouth by Bricks some nine Inches wide. Into this Trench they put their Sea-coal, the Flame whereof passeth into all the Parts of this Furnace, and reverberates from the Roof upon the Frit, over whose Surface all the Smoak flieth very black, and goeth out of the Mouth of the Calcar; and the Conciator, or Funder, never stirs his Frit till the Smoak is past. The Coals burn (as in other Furnaces) on Iron Grates, and the Ashes fall thence into the Ash-hole, which is level with the Floor. *Meret's Notes upon Antonius Neri.*

CALCARIS FLOS, is the same as *Flos Regius*, or Larkspur; and so call'd because its Flower, in some measure, resembles *Calcaria*, or Spurs. *Blancard.*

CALCARIUS LAPIS, *Offic. Schw. 370. Geoff. Prælect. 65. Aldrov. Mus. Metall. 745. Schrod. 348. Mer. Pin. 213. Saxum Calcarium, Worm. 45. Charlt. Foss. 20. Boet. 522. Calcaria, Kentm. 55. LIME-STONE. See CALX.*

Castellus seems to think this Stone is sometimes call'd *Asphaltus*, ἀσφαλθς but I have never met with the Word in any other Author.

CALCATA. Yellow Ink. *Johnson.*

CALCATAR. See *CALCADINUM*.

CALCATON. Troches of Arsenic. *Johnson.*

CALCATREPOLA, *Matth.* The same as *CALCITRAPA*, which see.

CALCATRIPPA. The same as *DELPHINIUM*, which see. *Dale.*

CALCEDONIUS, for *CHALCEDONIUS*, which see.

CALCENA, *Calcenon*, *Calcenonia*, *Calcinonia*, are Terms in *Paracelsus* to express a morboous tartareous Matter, or tartareous Calx. *Paracels. de Tart. Lib. 2. Cap. 1.*

CALCEOLUS D. Mariæ, Sacerdotis, our Lady's, or Priest's Slipper, is a Species of *Alisma*, having, in the Middle of its Flower, a Concavity resembling that of a *Calceolus*, or Slipper. *Blancard.*

CALCETUS, *Calcenonius*, *Calcenos*. *Paracelsus, Lib. 2. de Tartar. Tr.* says, the Blood is *Calcetus*, by which he means impregnated with tartareous Particles.

CALCHITHIOS, *Verdegrise*. Also a *Marcasite*. *Johnson.*

CALCHOIDES Officula. The same as *CUNEIFORMIS OSSICULA*, which see. *Blancard.*

CALCIDICUM. A Medicine prepared of Arsenic. *Rulandus.*

CALCIFRAGA, Breakstone. An Epithet given to the Herb *Scolopendrium*, or *Spleenwort*, in *Scribonius Largus*, No. 150.

CALCIGRADUS, καλικογράφος, from καίγω, the Heel, and βαίω, to go, in *Hippocrates*, περὶ ἀρθρῶν, is one who, in Walking, lays much Stress upon the Heels. *Foetus.*

CALCINATIO. See *CALX*.

CALCINATUM majus, is whatsoever is dulcified by the Chymical Art, which was not so by Nature; such are dulcified Mercury, Lead, Anima *Plumbi*, Salts, and the like Substances, which are very speedily consolidated. *Johnson.*

CALCINATUM MAJUS POTERII, is nothing but Mercury dissolved in *Aqua-fortis*, and precipitated with salt Water. This Preparation *Poterius* used with great Success in the Cure of obstinate Ulcers. *Etmuller, Lib. 1. c. 516.*

CALCINATUM minus, is any thing which is sweet by Nature, without Edulcoration, and speedily cures; as Sugar, Manna, *Tereniabin*, *Nostoch*, (sorts of wild Honey) and the like. *Johnson.*

CALCINON. *Rulandus* and *Johnson* seem to make it the same with *Calcinatio*, when all they say of it is, that *Calcinon*, by the Reverberatory, is two-fold; *Calcinatio* specially so call'd, and *Cinefaction*.

CALCITARI, Sal Alkali, Alkali. *Rulandus. Johnson.*

CALCITEA, *Dragantum* (Vitriol). *Johnson.*

CALCITEOSA, Litharge. *Rulandus.*

CALCITHOS, *Verdegrise*. *Rulandus.*

CALCITRAPA. *Dale* takes Notice of two Plants which are call'd by this Name. The first is the

1. *Carduus stellatus*, *Offic. Ger. 1003. Emac. 1166. Schw. 250. Rati Hist. 1. 317. Synop. 87. Carduus stellatus, foliis Papaveris erratici, C. B. 387. Dill. App. 15. Carduus stellatus sive Calcitrapa, J. B. 3. 89. Chab. 355. Tourn. Inst. 440. Carduus stellatus sive Calcitrapa vulgaris, Park. 989. Jacea ramossissima, capite longis aculeis stellatim nascentibus armato, Hist. Oxon. 3. 144. Jacea stellata, foliis Papaveris erratici, Boerh. Ind. A. 140. Herm. Flo. 2. 40. Crupina capite stellato, foliis Papaveris erratici, Dill. Nov. Plant. Gen. 140. STAR-THISTLE.*

The Root of the *Star-thistle* is single, about a Finger thick, long, and running deep into the Ground, of a whitish Colour, having a pretty thick cortical Part. The lower Leaves grow flat on the Ground, encompassing the Root in a Circle, much

cut in, or jagged to, the middle Rib. The Stalk is divided into numerous Branches, spreading about, and seldom arising above two Foot high, with a few Leaves here-and-there at the Division of the Stalks. The Flowers grow thick upon the Branches, consisting of reddish or purple fistular Flowers, coming out of Heads, which are composed of several Scales, each ending in a long, strait, hard, and sharp Thorn. The Flowers pass away in Down, containing white flattish oblong Seed. The *Star-thistle* grows near Highways, and upon Commons; and flowers in June.

The Root is commended by some as a singular Remedy against the Stone, Gravel, or Colic, by giving it either in Decoction with Wine or Water, or in Powder, with a convenient Vehicle. *Miller's Bot. Off.*

Its Leaves are very bitter, and give a faint Tincture of Red to the blue Paper; the Root gives it a deeper, and has the Taste of an Artichoke. The *Star-thistle* contains a Salt very like that which is natural in the Earth; for its Solution is very bitter, and loaded with Sal Ammoniac and Nitre. It is likely, that the Sal Ammoniac predominates in this Plant; for the Nitre makes no Impression upon the blue Paper, whereas the Sal Ammoniac reddens it considerably: That which is found in this Plant is join'd with a considerable Quantity of Sulphur and Earth; thus the *Star-thistle* is febrifugous, vulnerary, and aperitive. For an Intermitting Fever they give to drink, at the Beginning of the Fit, four or six Ounces of its Juice. It removes the Webs of the Eyes, and cures Wounds.

M. De Lamoignon, Intendant of *Languedoc*, has been willing the Public should enjoy the Benefit of a Remedy, by which he was cured of a troublesome Nephritic Colic, with which he was often afflicted. The Remedy, as it was printed at *Montpelier*, by his Order, is as follows:

The 28th Day of the Moon, every Month, drink, early in the Morning, a Glass of good White-wine, in which has been infused a Dram of the first Bark of the Root of *Star-thistle*, gather'd about the End of September. This Bark is a small Skin, very fine, brown without, and white within. It is dried in the Shade, and reduced to a very fine Powder. The Evening before you take this Medicine, put in a Gallon of Water a Handful of Pellitory, a Dram of Sassafras-wood, as much of Anise, and a Pennyworth of fine Cinnamon; seeth it over a clear Fire for half a Quarter of an Hour; then remove it from the Fire, cover it well with its Lid, and with Paper, and set it upon hot Ashes. The next Day set the Pot again before a clear Fire, and make it seeth for half a Quarter of an Hour; after which put two Ounces of powder'd Sugar-candy in a Silver Porringer, and pour upon it the Infusion, strain'd thro' a Linen Cloth, with the Expression of the Forces; when the Sugar is dissolved, let the Patient drink it as hot as he can, and take nothing else for three Hours; which must be observed also after taking the first Medicine. The Use of these Medicines requires no particular Regimen.

Camerarius affirms, that at *Frankfort* they make use of the Root of *Star-thistle*, instead of that of Eryngo: It is employ'd in aperitive Ptisans and Broths. One Dram of the Seed of *Star-thistle*, infused in a Glass of White-wine, takes away the viscid Matter which obstructs the Urinary Passages. *Martyn's Tournefort.*

A Water distil'd from the Flower, or the Seeds in Powder, are said to expel the Stone. The Root is said to be good in slow Fevers, and to purge the Body of ill Humours. *Dale.*

2. *Calcitrapa*, *Offic. Carduus stellatus luteus, foliis Cyani*, C. B. Pin. 387. Raii Synop. 3. 196. Tourn. Inst. 440. Elem. Bot. 349. *Carduus Solstitialis*, Ger. 1003. Emac. 1166. Mer. Pin. 21. *Carduus Solstitialis Dodonæi*, Park. Theat. 989. *Spina Solstitialis*, J. B. 3. 90. Raii Hist. 1. 317. *Jacea stellata*, *Spina Solstitialis dicta, foliis Cyani*, Herm. Flor. 2. 40. Boerh. Ind. A. 141. *Jacea lutea, capite spinoso minori*, Hort. Lugd. Bat. 332. *Leucacantha veterum, Carduus vel Spina Solstitialis*, Chab. SAINT BARNABY'S THISTLE. *Dale.*

Gesner affirms, that it is good for the Jaundice: *Camerarius* says the same thing; and commends it in all sorts of Obstructions, for the Cachexy, Dropsy, Pleurisy, and Sciatica. *Martyn's Tournefort.*

It is esteem'd aperient, deobstruent, lithontriptic; and is said to allswage the Fervor of the Blood. *Dale.*

CALCOCOS, Brasa. *Rulandus.*

CALCOIDEA *Officula*. Three little Bones belonging to the Ankle, so call'd by *Fallopins*, and are the same with the *Officula Cuneiformia*.

CALCOKEUMENOS, Burnt Copper. *Rulandus.*

CALCULIFRAGUS, *λίθοτριψήνους*. Stone-breaking, Lithontriptic.

CALCULOSUS. Afflicted with the *Calculus*, or Stone.

CALCULUS.

The *Lithiasis* in *Greek*, *Calculus* in *Latin*, the Stone in *Eng-*

lish, is usually understood of the Stone in the Kidneys, Ureters, or Bladder. Yet these are not the only Parts in which Stones are generated; for we find Stones, and stony Concretions, in many of the Cavities of the Body, and sometimes in other Parts. Thus *Hippocrates* takes Notice of a Stone in the Uterus, which render'd the Woman barren, and was brought away with great Pain when she was Sixty: See the Article AMPHIPOLOS. Thus also it is notorious, that Stones are frequently generated in the Gall-bladder. *Lister* takes Notice of Stones generated in the *Vesiculæ Seminales*; and I have taken small ones out of the *Prostata*, to the Number of twenty or thirty.

Alexander Trallianus relates a Case of a Person who cough'd up a Stone; and I know a Lady, now alive, who was thought many Years ago to be in a deep Consumption; but, upon coughing up a Stone, near as large as a small Nutmeg, she recover'd her Health perfectly. Dr. *Freind* says, That of such Stones, cough'd up, he had seen several, and some as big as a Filbert, where no Signs of a Consumption appear'd, only there continued an inveterate Cough. One he knew, who had brought up four or five such, at long Distances of Time.

We may therefore conceive, that if any small indissoluble Substance is fix'd in any Part of the Body whatever, a stony Crust soon forms itself upon it, either more or less. If such a Concretion of the earthy Parts of the Blood happens at the Extremities of the Urinary Ducts, where they open into the Kidneys, and forms a small Grain of Sand, hence arises the Stone in the Kidneys, which, increasing daily, in time grows considerable enough to incommode and obstruct the Kidneys, and bring away a Part of its Substance in the Form of grumous Concretions, Pus, Caruncles, or Skins, till at last it corrupts the Whole, exciting bloody, purulent, and fetid Urine; and sometimes an Inflammation, and consequent Exulceration, of the adjacent Parts.

When this is by any Cause whatever remov'd from its native Place into the Pelvis of the Kidney, and from thence into any Part of the Course of the Ureter, or its Entrance into the Bladder, it frequently intercepts the Urine, and causes an acute inflammatory Pain.

When the Stone is convey'd into the Bladder thro' the Ureters, it is often expel'd from thence, and discharg'd by the Urethra. But, if it remains in the Bladder, the earthy Parts of the Urine adhere to it, and increase its Bulk, forming upon it various Strata, which are sometimes red, sometimes white, ash-colour'd, or azure, the Nucleus which fell from the Kidneys always remaining red. And it appears, by Chymical Experiments made upon Stones, that those of an Azure-colour are the most indissoluble, the Ash-colour'd next, the White next, and that the Red are most easily dissolv'd.

The Symptoms of a Stone in the Kidneys are, an obtuse Pain at the Region of the Kidneys; a Discharge of bloody Urine after any considerable Motion of the Body, especially in a Coach upon stony Roads; gravelly small Stones, Caruncles, or Filaments, discharg'd with the Urine. *Boerh. Aph.*

As the Account *Aretæus* gives of Nephritic Complaints is, perhaps, inferior to none, I shall give it in this Place, in order to make up the Deficiencies of *Boerhaave's*.

The Kidneys are of a glandulous Consistence, and of a red Colour, in which respect they are more like the Liver than the Breasts or Testicles; for these, tho' glandular Substances, are more white. The Shape of the Kidneys is like that of the Testicles, only flatter, and more incurvated. Within them are small narrow Sinuses, which serve for the Percolation of Urine; and from them proceed two nervous Ducts, one from each Kidney, like Pipes, which are inserted into the Bladder, one on each Side, and convey the Urine, by equal Passages, on each Side, from the Kidneys to the Bladder.

The Kidneys, and their Canals, or Ducts, before-mention'd, are subject to many and various Disorders, some of which are acute, and destroy the Patient in a short time; such are Hæmorrhages, Fevers, and Inflammations; others are chronical, but mortal and incurable, and, after long wasting the Body, come to one common Period with the Life of the Patient. Of this kind are Abscesses, Ulcers, Stone, and, from hence, bloody Urine. Ulcers proceed from Abscesses, but are always extremely tedious, and difficult of Cure.

The Generation of Stones is very slow, but the Fit very painful, from the Obstruction of the Passages; and, which is the most dismal Circumstance, the Urine is suppress'd. If many small Stones, compress'd together, or but one great Stone, stop up the Passage, and this be the Case with respect to both Kidneys, Death must necessarily follow in a few Days, from the Suppression of the Urine, and the Distention of the Parts. Nature, indeed, has taken care to form the Sinuses of the Kidneys of an oblong Figure, and of equal Capacity with the Ureters, and larger than small Stones, with an Intent that if such Concretions should be generated in the upper Parts, they might find an easy Descent into the Bladder. For the same Reason the Stones are of an oblong Figure, since they are generally found sticking in the Ureters; and such as are of an uneven

uneven Bigness, are slender in the fore Part, because of the Narrowness of the Ureters, but thicker in the hinder Part, because the Kidneys discharge themselves downwards. The Stones are generated only in the Kidneys, and that when very much distemper'd with Heat, and have no Seat in the Ureters; into which, however, the Gravel falling, is both a Sign, and the Matter, of the Disease. If the Sinus of the Kidney be obstructed with a Stone of considerable Bigness, there arises a Pain in the Loins about the Muscles call'd *Psoæ*, which extends itself to the middle Rib; so as to cause the Disease to be oftentimes mistaken for a Pleurisy; there is a Sense of Weight upon the Hip; the Patient bends forwards with Difficulty, and can scarcely move his Back; he labours under severe Gripings, which are attended with a Sensation of Heaviness, and remove from one Place to another, because of the Convolutions of the Intestine. If there be a Redundancy of Urine, the Parts are distended, and the Patient is tormented with a Desire to make Water, like a Woman in Travail. He becomes fill'd with Flatulencies, which are not readily discharg'd; a biting and dry Fever seizes him; his Tongue is parch'd, his Belly constipated, and his Body wasted; he loaths all Food, or, if he takes any Sustenance, it is with great Difficulty that he digests it, or receives any Refreshment from it. If a Stone falls into an Ureter, it raises a Shivering, as from Cold, and the Progress of the Stone is felt, attended with a violent Pain. If a Stone falls into the Bladder, there is a plentiful Discharge of aqueous Urine, the Belly is evacuated, Flatulencies are expel'd, the Stomach is easy, there are Eructations, and the Patient is freed from those Evils which before molested him. If the Ureter be lacerated by the Stone, Blood sometimes passes off with the Urine. Another Pain commences, when the Stone passes thro' the Urethra; for, if it is larger than that Canal, it is there detained for a long time; mean while the Bladder is full, and there is a total Suppression of the Urine, attended with a most tormenting Pain; for even the Ureters are full. The crooked Stones are most painful in their Passage; for I have seen some which have bended like a Hook, and have observ'd Callosities in the Urethra; but these Stones are, for the most part, form'd into an oblong Figure, according to the Shape of the Passage. As to the Colour of these Stones, some are white, like Chalk, and these are commonly found in Children; others are yellow, like Saffron, and generally afflict old Persons, who are also most subject to the Stone in the Kidneys, as Children are to the Stone in the Bladder. There are two Causes of the Concretion of these Stones: In aged Persons, the Coldness of their Bodies, and the Thickness of their Blood; for Cold soonest causes a Concretion of thick Matter. A Proof of this is, that the Waters of naturally hot Springs are by Cold congeal'd into a callous sort of Stone. In Children, the Generation of the Stone is owing to much slimy Matter, which the Blood, like Fire, torrefies, and reduces to a stony Consistence. Such are the Disorders which are consequent to the Generation of a Stone.

Some, at certain Seasons, make bloody Urine, in which respect this Disease is like the Hæmorrhoids, and induces a like Habit of Body. Persons thus affected are of a pale Colour, lazy, unfit for Business, and have neither Appetite nor Digestion. After their periodical Hæmorrhage, they become languid and paralytic in their Limbs, but lighter and freer in their Heads: But, if they miss their usual Evacuation, they are troubled with a Pain in the Head, a Dimness of Sight, a Scotomia, and Vertigo; whence many become epileptic, others bloated, blind, and hydropical; others grow melancholy, or paralytic: And these are the Effects which proceed from a Retention of the Blood which used to be evacuated. If the Blood flows from the Kidneys, it is usually discharg'd pure, and unmix'd with the Urine, out of the Bladder. Sometimes it rushes on a sudden, in a full Stream, from a Rupture of the Kidneys, and congeals into Clots; sometimes it congeals in the Bladder, as if it were out of the Body, and thereby causes a terrible Suppression of Urine. A Rupture is succeeded by inveterate and stubborn Ulcers. The Signs of an Ulcer are, the voiding of a Coat, or thin reddish Membrane, like a Spider's Web, or white Pus with the Urine, sometimes pure and unmix'd, and, at other times, mix'd with the Urine. The Signs of the Formation of an Abscess are, a Fever and Shiverings in the Evening, with Pains and Itchings about the Loins. An Abscess is known to be broken by the coming off of purulent fleshy Clots, and white Pus. The Ulcers are of the biting Kind, and sometimes pure, sometimes foul, which is known by the Pus, and from the Urine having sometimes an ill Smell, at other times none at all.

The Spring generates Hæmorrhages and Abscesses; the Winter and Autumn, the Stone and Gravel. If an Ulcer succeeds the Stone, the Disease becomes incurable, and the Patient falls into a Consumption, which soon terminates in Death. *Aræteus περί ἀσθ. καὶ σπυ. χρο. παθ. Lib. 2. Cap. 3.*

From ALEXANDER TRALLIANUS.

Stones in the Kidneys are generated of a thick and viscid Matter, too much bak'd or torrefy'd by the igneous Heat of

those Parts; so that the material Cause of the Stone is a gross Matter, but the efficient Cause an igneous Fervecy; for of such Matter, with the Help of Fire, do Potters make their Vessels, in such a manner as to be indissoluble by Water. This being the Case, we must endeavour to prevent the Generation of this gross Matter in the Kidneys, and to preserve those Parts free from that igneous and intemperate Heat; for, without either of these, no such thing as a Stone can be generated.

You ought to be very careful in your Examination, whether a Pain proceeds from the Stone, or not; for the same Symptoms happen to those who are afflicted with the Colic, as to those who labour under the Stone; and it is no easy Matter, especially in the Beginning, to distinguish one from the other by the Signs. In both Affections the Patients are molested with Vomiting and Costiveness, with Flatulencies and Distentions, which extend so far as to affect even the Stomach and Liver. But tho' they have the same Symptoms in common, a Man who is Master of his Business will know how to distinguish them; for, in the Colic, the Vomiting is more, and the Matter ejected crude and pituitous; the Belly also is more bound, and the Flatulencies more retain'd: But, in the Stone of the Kidneys, it is otherwise; for oftentimes they have the Benefit of a Stool by the Use of proper Remedies, and sometimes break Wind, and evacuate downwards, without the Help of Medicine, which never happens in the Colic. The Urine ought also to be nicely inspected, in which you will perceive a very considerable Difference; for, in the Colic, it has a more pituitous, as well as more copious, Sediment; but, in the Stone of the Kidneys, it has less Sediment, and, upon a careful Examination, you may discover sandy Particles therein, which are not found in the Urine of those affected with the Colic. The Pain also under a Fit of the Stone is not only more severe, but fix'd principally in one Place, which does not happen in the Colic. *Alexander Trallianus, L. 9. C. 4.*

From LOMMIUS.

The Pain proceeding from the Stone in the Kidneys may be known by the following Signs: There is a most severe and pungent Sensation in the Kidney, as if a Thorn were fix'd in it, which settles in that Part, without shifting, except that sometimes it communicates itself thro' the Groin towards the Hip, or the neighbouring Testicle: There is no external Tumor: The Patient cannot bend his Back without Difficulty: The Leg on the same Side with the affected Kidney is sometimes contracted, sometimes, as it were, benumb'd: There are frequent Eructations, with a great Loathing of Food. When the Pains are very intense, the Patient is seiz'd with Vomiting; first of Phlegm, soon after of yellow Bile, and, at last, of æruginous Bile; after which the Pain is mitigated. The Belly, in this Disorder, is constipated, and, by pressing upon the Kidney with the contain'd Fæces or Flatulences, augments the Pain: But, if it happens to be evacuated, a sort of bilious Matter, together with Wind, is discharg'd. When the Patient lies on the affected Part, or while he is fasting, the Pain is mitigated; but, when he lies on the contrary Side, or after a full Meal, when the Food begins to descend towards the Intestines, the Pains and Disorder are exasperated.

At the Approach of the Fit, the Urine is little in Quantity, thin, and aqueous; and soon after, as the Pain increases, is frequently utterly suppress'd, till the Stone being discharg'd from the urinary Passage, which the *Greeks* call *συνίσα*, (Ureter) a great Quantity of thick Urine comes off, which deposits a good deal of Sand, and sometimes large rough Stones, or Fragments of Stones; sometimes the Urine appears with Bubbles, and has an ill Smell; sometimes comes away frequently, and in small Quantities, attended with a scalding Heat; oftentimes it brings away what is like Blood with it, especially after Labour, or hard Riding. They who are obnoxious to this Disease, have, for a long time, discharg'd a thick reddish Urine, with a dense and tenacious Spume, which sometimes deposits a red, sandy, and somewhat viscous Sediment; sometimes it continues foul, and, if strain'd thro' a Woollen Cloth, leaves a Substance like the Sediment before-mention'd. This kind of Urine often passes off, for many Years together, without any Inconvenience, without any Pain in the Kidneys, or any other Symptom of the Stone; when, unexpectedly, and all on a sudden, the Kidney is seiz'd with a most acute Pain, and, at the same time, the Belly is constipated, and the Leg on the same Side with the affected Kidney taken with a Numbness. The Pain often remits, and returns at pretty long Intervals, and sometimes without discharging any Stone, but a thick and turbid Urine, and, perhaps, after hard Riding, a bloody one. And, indeed, the voiding bloody Urine often shews the Stone in the Kidneys, when there is no Pain, nor any other Mark by which it can be known, or so much as suspected.

When the Pain is succeeded by an Excretion of the Stone from the Kidney, the same, falling into the Head of the Ureter, causes a Discharge of thin watery Urine, in a small Quantity; or, which often happens, totally suppresses the same. But if the Stone should happen to be repress'd into the Cavity of the Kidney,

Kidney, or, at least, if it penetrates into the Bladder, there follows an Evacuation of such Urine as was before describ'd; so that I am of Opinion, that *Hippocrates* was in the right, when he said, that a sudden Pain of the Kidneys, with a Suppression of Urine, prognosticated a Discharge of Stones or thick Urine. The Stone is often so big as not to be expel'd from the Substance of the Kidneys, in which it was generated, into their Cavity; and, during that time, the Patient feels little or no Pain, but makes a thick, foul, reddish Water, as above describ'd. But after violent Exercise, or hard Riding, not only such kind of Urine is discharg'd, but a bloody Urine, which deposits a grumous Concretion of a Substance like Blood. When the Stone is remov'd into the void Space, or Cavity, of the Kidney, if it be large, and tend downwards, it stops the Ureter, and intercepts the Passage of the Urine, in such a manner that but very little, and such as is of a thin and aqueous Substance, can be discharg'd; such a Stone, at the same time, excites a very sharp Pain. But when the Stone, tho' descend'd into the Ureter, is too small to cause a considerable Stoppage of the Urine, or when large, and newly remov'd from the Substance into the Cavity of the Kidney, and it has not yet applied itself to the Beginning of the Ureter, there passes off a thick, foul, red, or a dark, and somewhat livid Urine.

Smooth and round Stones are not so difficult to be discharg'd, as oblong and rough ones; but all are not of the same Bigness, Figure, or Roughness. Persons who have been long troubled with Pains in the Kidneys, and have their urinary Passages pretty open, are, for that Reason, tormented with large Stones, but not with those of a moderate Size; whereas those who are but newly affected with this Disorder, or, at least, have seldom been pain'd, suffer severely from the least Stone.

The Stones of the Kidneys are, almost all of them, of a reddish Colour, tho' purulent Kidneys discharge also white ones; black and pale Stones have also been observ'd. In this Affection, the more aqueous the Urine is, and the longer it so continues, and the less Sediment it has, the harder, you may assure yourself, are the Stones in the Kidneys, the more confirm'd, and the more obstinate in resisting Remedies; tho' Urine seldom comes off clear from those who are subject to great Pains of the Kidneys. Fat and aged Persons are most frequently afflicted with this Disorder; it seldom or never happens to Children, and rarely to adult Youth. It seldom also molests those who frequently vomit, and are not subject to be costive. As all Disorders in old Persons are very difficult to be cur'd, so this, of which we have been speaking, admits of no Cure at all. The same is hereditary to a greater Degree than all other Distempers; so that a Man seldom or never escapes the Torment of the Stone, who was, on account of his Parents, by Nature subjected to this Disease from his Birth. *Commius, Med. Obs.*

From HOFFMAN.

The Word *Calculus*, among the ancient *Romans*, had a great many different Ideas affix'd to it: Thus it signify'd a small Pebble or Gravel-stone, a Chess-man, a Counter, and, by a Metonymy, an Account or Computation, a Doubt or Difficulty, a Sentence of Absolution or Condemnation, as also a Vote or Suffrage; but, by Physicians, this Word is appropriated to Stones form'd and generated in the human Body. These are produc'd in various Parts; in the Stomach, for Instance, in the Gall bladder, in the Liver, in the Lungs, and in the Interstices of the Muscles in almost every Part of the Body; but no-where do they produce such terrible Consequences, or excite such intolerable Pains, as when lodg'd in the Kidneys, the Ureters, and urinary Bladder.

As the Pain, rising from a Stone slipping from the Kidneys into the Ureters, is the most intense and racking that can possibly afflict Mankind; so, upon its first seizing the Patient, it often happens, that it is with Difficulty distinguish'd from other acute Pains of the lumbar Region.

'Tis a Notion as false and absurd, as 'tis common and popular, that when any one is seiz'd with Pains about his Loins, he must therefore be afflicted with the Stone in the Kidneys; since, in that Region, there are several Parts highly sensible of Pain, and susceptible of Injury; such as the external and internal Muscles of the Loins, the nervous Ligaments of the lumbar Vertebrae, the superior mesenteric Plexus of Nerves, a Branch of the superior meseraic Artery, and, in their Neighbourhood, the winding Extremity of the Intestinum Duodenum, and the Sigmoide Flexure of the Colon; in all which Parts, when either too much distended, or compressed, by the Stagnation of an impure bloody, or serous Humour, very terrible Pains are excited. Sometimes also a Rheumatism, seizing these Parts, produces Pains so racking and intolerable, that the miserable Patient, as if his Loins were cut in the Middle, bends forward, and cannot raise himself up. The same Symptom may also be produc'd, if by a Fall, or lifting any great Burden, the Vertebrae and Nerves are remov'd ever so little from their natural and proper Situation. Too large a Quantity of Blood stagnating about the mesenteric Plexus, and emulgent Arteries, in plethoric Habits, and in those who are subject to the Haemorrhoids, or, in other

People, in consequence of neglecting Venesection, when they have been habituated to it, frequently excites a violent Pain in the Region of the Loins, which is commonly, tho' falsely, ascrib'd to the Stone; since it is often suddenly remov'd, either by Venesection in the Foot alone, or by discutient nitrous Powders.

But it very often happens, that the Colic is mistaken for a Pain produc'd by the Stone; for, when the Flexure of the Colon, which lies near the Loins, is either too much distended with Flatulencies, or spasmodically constricted, a violent Pain is not only produc'd in the Region of the Loins, but also passes to the Praecordia, excites a Nausea and Reaching, prevents the Discharge of Urine, renders the Patient costive, and racks the whole Abdomen with Pains as severe as those generally arising from the Stone. But since this spasmodic Pain is not constant and fix'd, but rather wandering, and of such a Nature as to be greatly reliev'd by the Injection of emollient Clysters, the skilful Physician may, from these Circumstances, easily distinguish it from the Pain arising from the Stone, which bears down more powerfully, does not waste the Strength so much, and remits at Intervals, so that the Patient can frequently rise, and walk about, which does not happen in the Colic. Besides, if the Pain arises from the Stone, the Vomiting and Nausea are greater when the Stomach is empty than at other times; a Titillation, and pricking kind of Pain, are also felt in the Urethra and Glans; the Urine is loaded with Sand, the Testicle is retracted, the Thigh seiz'd with a Stupor, and the Side itself contracted; none of which Symptoms are observ'd to attend the Colic.

'Tis to be observ'd, that Stones of a very large Size, with considerable Branches rising from them, may be lodg'd in the Substance of the Kidneys for some Years, without creating any great Pain or Uneasiness to the Patient; but, as soon as they are remov'd from their former Seat, and falling into those narrow, nervous, and muscular Ducts, call'd the Ureters, seek a Passage thro' them into the Bladder, the most terrible Symptoms forthwith appear: So that the Ureters themselves may be the fix'd and genuine Seat of Pains arising from the Stone; but these Pains are more or less intense, according as the nervous Coats of these Canals are more or less distended by the Bulk, or irritated by the Roughness, of the Stones which shall happen to be lodg'd in them. These Pains are sometimes so severe and intense, that, besides a Shivering and Refrigeration of the Extremities, they also excite a Nausea, a Vomiting, a spasmodic Constriction of the Praecordia, a difficult Discharge of the Urine, a Stricture of the Belly, an Uneasiness in Breathing, a Stupor of the Leg, a Retraction of the Testicle to the *Os Pubis*, Restlessness, incredible Loss of Strength, a Syncope, and even epileptic Fits; at other times they bring on a Suppression of Urine, which proves fatal to the Patient. I have sometimes observ'd Patients complain, that they felt such a Pain as if one was continually inflicting a deep Wound all along the Spine, near the Bladder; and, in these Cases, when the Patients were laid open after their Death, the Ureters appear'd distended and turgid like a Pudding, by the large Quantity of Urine which had been deny'd a Passage into the Bladder, on account of a Stone lodged in the Ureter, near its Insertion into that Organ.

'Tis confirm'd by Observation and Experience, that a Stone has sometimes been lodg'd for a long time in the Ureter without creating any great Pain, or intercepting the Passage of the Urine; after which the Pain has seiz'd the Patient unexpectedly, and brought along with it Loathing of Food, Nausea, Vomiting, and Interception of Urine. This Phenomenon has, in all Probability, been owing to the Situation of the Stone being chang'd by some Accident, so as, by its Roughness and Inequality, to prove more offensive to the nervous Coat of the Ureter. Nor is this Disorder universally accompanied with the same Train of Symptoms; for, as *Erasmus* says of the Stone with which he himself was afflicted, in his Epistle to *Perckmeyerus*, "It transforms itself into Shapes so unlike those it formerly bore, that one would really believe it to be another Disorder; one Set of Symptoms attends its Beginning; another appears in its Progress; it sometimes remains fix'd, and sometimes changes its Seat."

'Tis a Circumstance worthy our Attention, that Stones are more frequently lodg'd in the Left, than in the Right Kidney; hence it happens, that Pains arising from the Stone in the Kidneys are observ'd to happen more commonly in the Left than in the Right Side. This is confirm'd by *Carolus Piso*, in *Tract. de Morbis ex serosa colluv. oriund.* where he affirms, "that among an hundred labouring under the Stone of the Kidneys, eighty and more have the fatal Cause of their Disorder lodg'd in their Left Kidney." Nor is the Reason of this Phenomenon so much a Mystery as at first it may appear; for in the Vessels of the Right Kidney, which is cover'd with that large Organ the Liver, and cherish'd with a more considerable Warmth than the Left, the Circulation of the Blood is quicker, and the Separation of the urinous Serum more speedily perform'd. Hence a Stagnation of the Blood and Urine cannot so readily happen in this as in the Left Kidney, which

which, being encompassed by the Flexure of the Colon, is more compressed in consequence of a frequent Stagnation of Flatulencies. Hence it happens, that the intercepted Course of the Blood thro' the compressed Vessels renders the Percolation of the Urine thro' the small Tubes more difficult, brings on a speedy Stagnation in them, and consequently lays a Foundation for the Separation and Concretion of a tartareous or calcareous Matter.

'Tis equally remarkable, and equally confirm'd by Experience, that a Stone which has long remain'd in the Parenchyma of the Kidneys, or in the Pelvis, may be remov'd from its former Seat, and thrust into the Origin of the Ureters, by various Causes; the principal of which are, violent Perturbations of Mind in consequence of indulging the Sallies of Passion; vehement and sudden Commotions of the Body, by Gestation or Riding; and particularly the penetrating Cold of Northerly Winds admitted to the Loins; as also a too liberal Use of Diuretics, such as Preparations of Turpentine and Juniper, generally, tho' absurdly, prescrib'd by some Physicians, as Preservatives against the Stone. I have also often observ'd, that flatulent Colics, and the Spasms with which the Hypochondriac, the Hysteric, and such as are subject to the Hæmorrhoids, are commonly afflicted, do by protruding the calculous Concretions lodg'd in the small Papillæ of the Kidneys, frequently lay a Foundation for intense and violent Gravel Pains.

As for the remote, or, as they are called, the natural Causes, which contribute to the Generation of Stones in the Kidneys, and the Production of the subsequent Pains arising from them, the principal and most considerable is what we call a sanguine Constitution; for Bodies of a soft and spongy Texture, especially those of the Female Sex, whose Veins are filled with Blood, who live delicately, and drink Wine, who indulge themselves in Idleness, and lead a sedentary Life, and who wantonly use Cheese, Milk, and Sweet-cakes, are, especially after the fiftieth Year of their Age, when the Monthly Evacuations cease, subject to Pains arising from the Stone, with which for the most part they are not afflicted so long as the Monthly Discharges are duly and regularly carried on. Among Men, they who in their Youth have been subject to Hæmorrhages of the Nose, and frequent Head-achs, as also they who, having been accusom'd to hæmorrhoidal Discharges, have them either entirely stopt or diminish'd, are in a more advanc'd Age most subject to be afflicted with arthritic and nephritic Pains. Experience convinces us, that old Age is of all others most subject to the Stone, both in the Kidneys, and in the Bladder; because then the Humours are more inspissated, the Aliments become acefcent in the Stomach, the Belly is less open, and Eafe, which at that Period of Life is generally more indulg'd than in Youth, contributes not a little to the Generation of Stones. This Circumstance *Erasmus* in all Probability had in View, when he passes the following Jest upon his own Misfortune. "It may, says he, appear wonderful that Women should become barren by Age, which has render'd me more fruitful; for from Day to Day I bring forth more frequently."

It also happens, that scarce any Disorder whatever is so frequently observ'd to be convey'd from Parents to their Children, as the Stone and the Gout, another Disorder of a near Affinity to it in consequence of a peculiar Disposition of the Fluids and Solids; for both these Calamities not only afflict those Men who are full of Blood, and are said to be of sanguine Habits, but they also both draw their Origin from a natural Weakness, and want of Tone, in the Solids; with this Difference, that in the nephritic Patient the Kidneys are the Seat of the Weakness; and in the arthritic, the Ligaments of the Joints. We also frequently observe, that rheumatic and arthritic Disorders are easily transform'd, and converted into those of the nephritic Kind; which in their turn are, by a Translation, as readily chang'd into the former; so that when a Person naturally subject to the Gout has been long free from that Disorder, he very readily becomes afflicted with the Stone in the Kidneys, and *vice versa*. It also frequently happens, that both these Calamities in Conjunction rack the miserable Patient at one and the same time.

As for the Generation of Stones in the Kidneys, we may account for it in this manner: When, in consequence of too large an Impulse of Blood, which with Difficulty returns by the Veins, the Blood-vessels of the Kidneys are too much distended and stuff'd; hence it happens, that the minute Arteries, where they become small Papillæ, and slender urinary Ducts, are burst and forc'd open; thus, by a Stagnation of the extravasated bloody Serum, small Abscesses and Ulcers are at first form'd, and afterwards gradually enlarg'd. When the urinous Serum, which is impregnated with many tartarous and slimy Parts, stops in these Abscesses and Ulcers, the more weighty and acuminate Particles are separated from the rest, and form themselves into Concretions, which at first have the Appearance of a thick and coarse fabulous Matter; afterwards Grains of a closer and more compact Texture are generated,

which by the Assistance of a plentiful Secretion of Urine are easily wash'd away; and often not totally discharg'd without Pain. Where-ever, then, such a gross and heavy Sand subsides in the Urine, it is an infallible Sign of Stones being lodg'd in the Kidneys. But when these calculous Concretions form'd in the ulcerated Substance of the Kidneys become gradually larger and harder, and are either by the Urine, which is impregnated with tartarous Parts, or by some other Cause, convey'd into the Pelvis, or the Beginnings of the Ureters, more terrible Pains are excited, and a formidable Train of Symptoms appear; because the calculous Concretions must make their Way thro' these narrow Ducts; of exquisite Sensation, to the urinary Bladder, into which when they have fallen, the Symptoms are entirely remov'd, and Strength is restor'd, to the no small Joy of the Patient.

That Stones may also be generated in the Parenchyma of the Kidneys, by the Stagnation of an ichorous, bloody, or purulent Humour, is, among other Circumstances, plain from these, that in nephritic Patients, as was long ago observ'd by *Celsus*, something of a bloody or purulent Appearance is discharg'd with the Urine; that Patients afflicted with the Stone frequently discharge a bloody Urine; and that their Kidneys have, after their Death, been found to be large, flaccid, and exulcerated. This is also obvious from a Consideration of the Cure, which is most happily brought about by abstergent, vulnerary, consolidating, and gently astringent Remedies. Nor do I deny, that without the Substance of the Kidneys being previously injur'd, a tartarous Matter, or Concretions of Sand of a very surprising Bulk, may be gradually form'd in the Pelvis, and larger Ducts of the Kidneys, in consequence of a Stagnation of the Urine. But in proportion, as this Matter, whether ichorous; or tartarous, differs with regard to Colour, Crasis, and Consistence, and according as the Accretion is greater or less, so various Kinds of Stones are generated and form'd; for some consist of a Substance so hard, that they appear almost to be of the Nature of a Stone; others are friable, and less firmly compacted; some are of a pale, and others of a cineritious Colour, whilst others are red, or of the Colour of Sandarach; some are larger, and others smaller; some are more angular and rough, whilst others are much less so.

That all nephritic Disorders, such as Infarctions of the Kidneys, Inflammations, Exulcerations, and Pains arising from the Stone, are more difficultly cur'd in old, than in young People, is a Truth not only confirm'd by Experience, but establish'd by the Authority of *Hippocrates*, in the sixth Aphorism of his sixth Section; for as Wounds and Exulcerations of the internal Parts are in an advanc'd Age difficultly cur'd, by reason of an increased Intemperies of the Humours, and an abundance of the Excrements; so the Wounds and Exulcerations of the Bladder are in that Period of Life cur'd with the greatest Difficulty, by reason of the excessive Acrimony of the Urine.

When violent nephritic Pains do not remit for several Days and Nights, but incessantly rack the Patient, and resist the most approv'd Remedies; and when at the same time a total Suppression of Urine comes on, accompanied with Coldness of the Extremities, and a kind of Convulsion of the Tendons; these Symptoms pronounce the Death of the Patient to be near. But Pains arising from the Stone preface the most particular and imminent Danger to those, who, thro' a long continued Course of Grief and Sorrow, have had their Strength previously impair'd; since, immediately upon their being seiz'd, a greater Loss of Strength, and a Gangrene of the internal Parts, ensue. Nor is it a good Symptom, when a Stone lodges long in one of the Ureters; for by this means the Appetite is lost, and the Digestion destroy'd, whilst the Nausea, the strong Efforts to vomit, and the Uneasiness remaining for a considerable time, a slow hectic Fever comes on, wastes the Strength, consumes the Flesh, and puts a speedy End to the Patient's Life.

After the Death of some Patients, Stones of a surprising Bulk, considerably compact, and furnish'd with large Branches, have been found in their Kidneys, which appear'd to be totally exulcerated, and cover'd with a hard Membrane, tho' they were never known to complain of any Pain during their Lives; and these Patients are cut off by a Disorder which we call *Tubes Renalis*. Some are, soon after their being seiz'd with nephritic Pains, cut off by an acute Distemper, whilst an Inflammation of the Stomach or Intestines at last succeeds the racking Pains they have endur'd. Others, by reason of a total Suppression of Urine, fall into a Dropsy of the Breast, a Lethargy, or Convulsions. *F. Hoffman.*

The CURR, as propos'd by ARETÆUS.

To prevent the Generation of Stones in a Constitution naturally dispos'd to breed them, is a Thing impossible; for it is more easy to prevent the Conception of Children in the Womb, than breeding of Stones in the Kidneys; our only Way therefore is to endeavour to expel them. For this Reason I shall give

give Directions in Cases of Difficulty, where the Stone pertinaciously adheres to the afflicted Part, which is a Circumstance attended with a violent Pain, and sometimes the Patient sinks under a Complication of Gripes, Colic, and a Suppression of Urine; for the Kidneys and Colon are contiguous. In a Fit of the Stone, therefore, attended with Gripes, and a Suppression of Urine, open the Vein of the Ankle, on the same Side with the affected Kidney; for an Effusion of Blood from the Kidneys relaxes that Constriction, which is the Effect of the Stone; and an Inflammation having seiz'd all the Parts, it is most readily resolv'd by an Exinanition of the Vessels. Embrocations also of the Loins near the Seat of the Kidneys are to be used with old or new Oil, in which Rue has been infused, or Diuretics, such as the Tops of Dill, Rosemary, or Samfucus; with these let the affected Parts be embrocated, as with Water; for simple Unctions are of little Service. Besides these, foment the Parts with Oil of Chamomile in Ox-bladders, and let Cataplasms be made of the same Materials, mix'd with Meal. Sometimes Cupping without Scarification relieves in a Fit of the Stone; but the best Way under an Inflammation is to scarify. If none of these move the Stones, let the Patient bathe in Oil, which is instead of all Remedies; for the Warmth thereof relaxes, and in some measure lubricates the Parts, and its Acrimony stimulates to Excretion. These then are the topical Medicines which promote the Expulsion of the Stones. Simple Medicines are Potions of the Roots of Valerian, Spig-nel, and Asarabacca; or of the Herbs Prionites, Parsley, or Stum; compound Medicines are, Ointments composed of Spikenard, Cassia, Myrrh, Cinnamon. *Aretæus περί θίσησ. χρυσ. παθ. Lib. 2. Cap. 3.*

From ALEXANDER TRALLIANUS.

The Cure of the Stone in the Kidneys, at the time of the Fit, must be attempted by such Medicines as are of relaxing and lenitive Qualities, and are, besides, endu'd with the Virtue of dissolving and expelling the Stone. The best Remedy for these Purposes is Bathing; because it not only mitigates, but has Virtue sufficient to cure the Distemper. It frequently indeed mitigates the Pain of the Colic, without curing it; but, under a Fit of the Stone, it not only mitigates the Pain, but wholly relieves the Patient. For the more effectually answering this End, let the Parts be anointed with Oil of Chamomile while in the Bath, and let the Patient sit for a good while together in the Solum, or Bathing-chair, in plenty of hot Water; and not only use the Bath once every Day, but two or three times. In the Summer Season let him often use the cold Bath; after which, being well wrapt in Linen, let him drink the Decoction of Carduus, with Smallage, or a little Anise. If the Pain continues, and the Expulsion of the Stone does not succeed, let him drink the Decoction of Cinquefoil, with his Cloaths still wrapt about him. This is a very grateful as well as effectual Medicine, and ought to be taken out of the Bath, either alone, or with Oxymel. If the Root of Cinquefoil be wanting, a Decoction of Eryngo, or Erysimum, and Prionites, being drank, is very effectual for the same Purpose. Outwardly may be apply'd Bags of frumentaceous Meals, with Decoctions of Chamomile, Marshmallows, Melilot, and Oil of Chamomile, often changing them. If frumentaceous Meals be wanting, you may use Woollen Rags, moisten'd with sweet Oil, or Oil of Chamomile, often warming and changing them. Clysters also are to be administered, but such as are not very acrimonious, but have a good Quantity of Oil in them, and are endu'd with a laxative and dissolvent Virtue. Such are Decoctions of Marshmallows, Fenugreek, dry'd Figs, Chamomile, and Oil of Chamomile; and in Constitutions where Heat much abounds, Cremor of Prisan, mix'd with Oil of Roses, Chamomile, and Yolks of Eggs. These Medicines being of a lenitive Quality, by restoring the Parts to a good Temperature, lessen the Cause of the Disease, and prevent those who have always the Stone in the Kidneys from having a Fit. If the Disease be still obstinate, we must have recourse to more powerful Medicines; such is Goat's Blood, which must be thus prepar'd:

When Grapes begin to be ripe, take a new earthen Pot, and put Water in it, and boil it, in order to take off the earthy Quality of it; then take a He-goat, in the Vigour of his Age, which is about the fourth Year, and fed for some time with Fennel-leaves, Amomum, and such-like sweet-scented Herbs; cut his Throat, and receive the middle Part of the Blood, rejecting what comes out first and last, in the Pot. After it is conglutated, mince it small in the Pot, and expose it to the Air, under the Cover of a fine Sieve, or a thin Linen Cloth, that the Sun and Moon may shine upon it, and that it may be dry'd, taking care that it receives no Moisture. When it is dry, reduce it to Powder, of which give a Spoonful at a time in *Cretan* Wine.

This is a most powerful and efficacious Remedy, as I know by long Experience. I have given it with burnt Troglodytic Myrrh in the severest Pains, and by that means brought away a large Stone piece-meal by Urine. This Medicine, besides dissolving the Stone, mitigates the Pain, and prevents the Generation of Stones for the future; for which Reason it is called, *The Hand of God*.

Anodynes are to be used only in the time of the Fit, and under extreme Pain, but avoided at other times, for fear of creating a Distemper in the Kidneys. But if there be any Danger of the Patient's sinking under the continual Pain, and want of Sleep, we must have recourse to such Remedies, as have not only the Virtue of mitigating Pain, but of procuring Sleep.

As to Bleeding, if the Patient be full of Blood, or the Fit be attended with an Inflammation, you ought to begin with breathing a Vein; by means of which, the Parts being relaxed, and the Passages open'd, the Remedies to be administer'd will have the more room to exercise their Virtue.

Amidst a Plenty of Medicines for this Disease, some indeed diminish the Stone, but at the same time promote the Generation of other Stones, by increasing their efficient Cause, which is the igneous Heat and Distemperature of the Kidneys. To prevent this Effect, avoid such Medicines as are very hot and acrimonious; or, if you are necessitated to use them once or twice, desist from them after you have obtain'd your Purpose, and do not use them, as is too commonly done, for the sake of Preservation. But all our Intentions must be directed to the procuring of a good Temperature, for which End we must make use of such Medicines as are attenuating without any considerable Degree of Heat. Such are Oxymel, Maiden-hair, a Decoction of Marsh-asparagus, and Couch-grass, the Roots of Smallage and Eryngo, and the Herb Cinquefoil, the Root and Leaves of Plantain, but especially its Seed, the Broth of Chiches, and Seeds of Peony and Almonds. But these are not to be used continually, but only when you are apprehensive of a Collection of gross Matter in the Kidneys. You would do well, always, before you eat, to drink warm Water; for nothing so well cleanses the Reins from Re-crements, or brings them to a just Temperature, so as to be indisposed for generating the Stone; for in Length of Time their fiery Heat is extinguish'd by the Tepidness of the Water. They are in the Right therefore, who in the middle of their Meals drink Water, or Wine cool'd, or prepar'd with the Juice of Roses or Violets. All season'd Meats, of what Kind soever, Pickles, and every thing that has Pepper in it, are to be avoided. And not only acrimonious Food, but such as yield a gross Juice, are to be prohibited, such as salted Meats, prepar'd Swines Udders, fine white Bread, hard Eggs, Cakes, and all other things prepar'd with Milk, as well as Milk itself, and Cheese, together with very black and austere Wines. The Patient also must never lie upon a Feather-bed, for these heat the Kidneys to a great Degree; he ought also not to stand much, but to keep himself sitting, or in Motion. He must avoid eating late, and Meats of hard Digestion, such as Sausages, all Fish of the cetaceous Kinds, as the Tunny, Mackerel, Pollard; and all testaceous Fish, except the Scallop and Sea-urchin, which last he would do well frequently to eat; for, besides inducing a good Temperament, it has a Faculty of provoking Urine. Lobsters and Whelks may sometimes, tho' seldom, be eaten; but Oysters are wholly forbidden, as well as all fat Beasts and Birds, and the continued Use of such as live in Marshes: But the Wings of Geese, and small Birds, which are not fat, as green Sparrows, and such as build in Towers, and the like; of Fruits, Cucumbers, especially the inner and medullary Part, Melons, dry'd Figs, thick-rind-ed Apples, and Pears in moderate Quantities, but not for Continuance, are allow'd. *Trallian, Lib. 9. Cap. 4.*

From HOFFMAN.

The whole Secret in curing Nephritic Pains seems to consist in bringing away the Stones easily, and with as little Trouble as possible; and in preventing and hindering the fresh Formation of that Sand or Matter which proves the immediate Cause of the Disorder, and all its concomitant Symptoms; for the Method of Cure, under an actual Paroxysm, differs widely from the Measures to be taken when the Patient is in a State of perfect Ease; in which Case, Preservation or Prevention ought to be the Intention of the Physician.

In the Paroxysm itself, where the Symptoms are violent, and the whole Economy of the vital Functions disorder'd by the exquisite and intolerable Pain, the first Step to be taken is, by proper Medicines, to allay the Vehemence of the Pain; and, by well-chosen Remedies, to soothe, and, if possible, remove the spasmodic Strictures, which not only rack the adjacent Parts, but, in consequence of that mutual Consent which prevails between any one Part and all the others, the whole nervous System. This is so much the more necessary, because, under such a violent Attack of Spasms, which constrict and brace up the Urinary Ducts, the Progress of the Stone thro' the Ureter into

into the Bladder is, with the greatest Difficulty, promoted. Among the most celebrated Medicines for answering this Intention, I must, above all others, recommend my own anodyne Mineral Liquor, on account of its Efficacy and Safeness; for, when exhibited in small, but frequent Doses, by allaying the Spasms of the *Primæ Viæ*, it wonderfully removes the uneasy Sensation there felt, the Nausea, and the Vomiting. If a sufficient Quantity of this Medicine cannot be had, the most proper Succedaneum to it is Spirit of Nitre, carefully prepared, in the manner directed by me in *Observat. Physico-chym.* See NITRUM. For this Spirit, being now divested of its acid Quality, by its mild and sulphureous Exhalations dispels Flatulencies, and relaxes spasmodic Strictures. The Spirit is, for this Intention, most properly exhibited with sedative Waters; such as that of black Cherries, and those of the Flowers of *Egyptian* Thorn, Elder, red Poppies, Lime-tree, Primrose, Lily of the Valley, Meadow-sweet, and especially the Waters of Chamomile-flowers, and the Tops of Yarrow, with the Addition of a little of the Syrup of red or white Poppies. It may also be exhibited in Flesh-broth, with a few Spoonfuls of pure and new Oil of Almonds, obtain'd without Fire. This Intention is also answered by Emulsions of sweet Almonds, the Four cold Seeds, and those of Poppy, Gromwel, and Carrot-seeds, prepared with the above-mention'd Waters, andedulcorated with a sufficient Quantity of the *Syrupus Albus*. But when these mild and gentle Medicines are not sufficient for mitigating the Pain, we must have recourse to those which are somewhat more powerful, such as Opiates, corrected, and render'd safe, by the Addition of other Substances; of this Kind are the *Pilulæ Wildegansii*, the *Pilulæ Starkii*, *Sydenham's* Liquid Laudanum, the *Theriaca Cœlestis*, and the *Trochisci de Alkekengi*; all which, on account of their Efficacy, and the Tendency of their Ingredients to sooth and allay Pain, deserve the highest Encomiums.

Besides these Remedies already mention'd, nitrous Preparations, and among these Nitre alone, purified and crystallized, or an artificial Composition of the Spirit of Nitre, and Salt of Tartar, or antimoniated Nitre, are superior, both in Efficacy and Safeness, to all other Remedies in allaying intense and acute Pains, accompanied with violent and raging Commotions of the Blood and Humours; and must, of consequence, be of all others the most proper in Nephritic Disorders. These Preparations are most commodiously mix'd with Powder of Crabs-eyes, with Cinnabar, or the *Pulvis Marchionis*, and a few Grains of the *Trochisci Alkekengi*, or the *Pilulæ Wildegansii*, and so drank off in an Emulsion, or in sweet Whey.

But when the Pains and Spasms become so violent as to be intolerable, internal Medicines alone are not sufficient for soothing and allaying them; but external Applications must also be called in to the Relief of the Patient; and, among these, none produce more happy and salutary Effects than Clysters prepared of emollient Flowers, especially those of the Garden Mallows, Elder, red Poppies, Yarrow, common Chamomile, and Mullein, boiled with Whey; adding some of the *Syrupus Dithææ* of *Fernelius*, Nitre, and *Epsom* Salt. When the inferior Part of the *Rectum* and *Colon* is so violently constricted, that the Flatulencies cannot be transmitted, but, rising to the superior Parts, increase the Uneasiness they already labour under, I have, in this Case, often observed very singular Relief afforded by Clysters of Oil, and pinguious Substances. The Belly being thus rendered soluble, and a Passage open'd for the Flatulencies, the Reachings to vomit, and the uneasy Sensation of the *Præcordia*, forthwith disappear.

In mitigating Pains of this Kind, as the Method of *Hippocrates* is the most ancient, so I think it the best and most efficacious of any; for, says he, in his fifth Book *de intern. Affection.* "when a Pain has seiz'd the Kidneys, wash in a large Quantity of hot Water; and apply tepid Fomentations, especially to the Part affected." The same Remedy is recommended by *Trallian*: And it must be owned, that no Remedies whatever are equal to Baths, and Semicupiums of pure Water, especially Rain-water moderately warm, in removing the most violent Pains of this Kind; and the Effect may be the more certainly depended upon, the oftener they are repeated. In Cases of this Nature I have also often seen singular Relief afforded, by applying to the Part affected, Liniments of human Fat, or that of a wild Cat, a Dog, or Beaver, made up with Unguentum *Dithææ*; or a Bladder fill'd with a Decoction of the above-mention'd emollient Flowers, prepared with Milk.

When, in consequence of a due and careful Use of these Medicines, a remarkable Remission and Alleviation of the Spasms ensues; when the Pulse becomes more calm and gentle; when a moist and equable Heat is felt over all the Surface of the Body; and when the Flatulencies are successfully discharged by the Anus; then the Protrusion of the Stone is to be attempted, with proper Remedies, and due Caution. I have seen this Intention speedily answer'd by various Remedies, and, among these, none affords a more remarkable and instantaneous Relief than liberal Draughts of an Infusion prepared of *Paul's-betony* and Parsley, or of the Seeds of wild Carrot, Ce-

lery, and Fennel, Winter Cherries, Liquorice-root, and Yarrow-tops; especially if a Glass of Liquor somewhat spirituous, such as *Malmsey* Wine, or Geneva, is drank immediately after the Exhibition of the Infusion. I have also observed, that in Conjunction with the Motion of the Body, a large Draught of *Forellus's* Antinephritic Infusion has proved of singular Efficacy in bringing Stones from the narrow Ducts in which they were lodged. But there is, in some Cases, a Necessity for more powerful Propellers, the safest and most efficacious of which are, Mother of Pearl, or the Shells of Eggs calcined, and exhibited with Lemon-juice, in some proper Vehicle.

The PRESERVATIVE METHOD.

As, in the Beginning of this Disease, Preservation is, comparatively speaking, an easy Task; so in its Progress, when, in consequence of any considerable Fault or Exulceration of the Kidneys, a large Quantity of Stones is form'd, and the Paroxysms return frequently, the Disorder is attended with the greatest Difficulty of Cure, and a Set of the most perplexing Circumstances; for since, as I have already observed, many are afflicted with Nephritic Pains, either in consequence of a preternaturally large Quantity of blood, or from its being render'd crude and thick, by the Use of a Variety of incongruous, viscid, and acid Aliments; hence nothing can be more proper for removing this terrible Calamity, than taking a sufficient Quantity of Blood, using due Motion and Exercise, drinking diluting Liquors, especially the medicinal *Selteran* Waters; as also fresh, but acidulated, Whey.

In Cases where Stones are continually discharged, there is a Necessity for having recourse to Medicines of a vulnerary, gently consolidating, and astringent Quality; for which Reason it has long ago been observed by many, and confirmed by the Practice of the common People, that, by a long Use of Decoctions, or Infusions of vulnerary Herbs, prepared with Water or Ale, and mix'd with sweet Butter or Honey, many have been entirely freed from this Disorder. The principal Herbs proper for this Purpose are Horsetail, Golden-rod, Ground-ivy, Strawberries, white Horehound, *Paul's-betony*, Pellitory of the Wall, Yarrow with its Tops, Mallows, Bark of *Egyptian* Thorn-root, Club-moss, torrefied Juniper-berries, Strawberries dried, the Stones and Fruit of roasted Hips; of which Powders an Electuary may be prepared, with white *Prussian* Honey, which, by its consolidating and balsamic Quality, is very proper against Disorders of the Kidneys; and half a Spoonful of it, taken in the Morning, drinking Tea after it, has been observed to afford very singular Relief to those who, for many Years, have laboured under these Disorders.

There is also another Method of preserving from the Stone by alkaline Medicines, which subdue and destroy that acid and glutinous Matter, which is the principal Foundation and Ground-work of the calculous Concretions: Hence it is, that Crabs-eyes, Mother of Pearl, Shells of Eggs, Shells of Fishes, and Snails, either simply prepared, or calcined; as also Thunder-bolts, Jews-stone, and the celebrated Powder of *Polkhammer*, which is thought to consist of calcined precious Stones; or simple Oil of Tartar *per Deliquium*, or of Potash, or fixed Nitre, Tinctures of Tartar, and the acrid Tincture of Antimony, frequently used, prevent the Generation of Stones, and consequently free the Patient from the violent Pains produced by them.

There are still more Remedies, whose Efficacy is observed to be equally beneficial to Nephritic Patients; and these are such as, consisting of oleous, pinguious, mild, and somewhat anodyne Particles, prevent that Union of the saline Spiculae, which is necessary to the Formation of a solid Concretion; for it is known, from Chymical Experiments, how small a Quantity of any pinguious Substance retards Crystallization. To this Class we may also justly refer those Seeds and Fruits which abound with a mild and sweet Oil; such as the Four greater cold Seeds, those of Gromwel, Saxifrage, white Poppy, and Ladies-thistle, sweet and bitter Almonds, Stones of Cherries and Peaches, which, either when reduced to a Powder with Sugar, or made up in the Form of an Emulsion, and frequently used, prove of singular Service to those who are frequently afflicted with this Disorder. We may also reckon, among the best Remedies for Distempers of the Kidneys, Liquorice-root, the Powder or Infusion of which is of singular Efficacy, in obtunding and correcting the acrid Particles of the Salts, and washing off mucous Substances. Among other valuable Medicines of this Class we may also justly reckon Yarrow, with its Tops; an Infusion or Decoction of which is, in Disorders of this Kind, of the most singular and surprising Efficacy, if used daily for a considerable time. By the Use of this single Herb, I have observed some Patients entirely freed from Nephritic Pains, to which they had been long subject; for it is proper in Cases of this Nature, upon several Accounts, since, besides its consolidating and mitigating Quality, it abounds with a truly anodyne Oil, which, both in Colour and Virtues, resembles that of Chamomile; and is highly efficacious in allaying Pains, and relieving Spasms.

But,

But, as in all Chronical Disorders, so more especially in preventing Nephritic Indispositions, we are to take particular Care, that the Stomach and Digestion, as also the Discharge of the Fœces, be kept in a due and natural State. *Aetius*, in his sixteenth Chapter, has a memorable Passage to this Purpose. "A moderate Quantity of Food, of an easy Digestion, prevails against the Stone; for Crudities not only exasperate the Disorder, but even lay a Foundation for it where it was not before: Let such as are subject to the Stone, therefore, abstain from eating to Excess, and from Supper altogether; let them vomit frequently, and daily drink Liquors impregnated with Wormwood. Let them also be purged at certain times; and live upon Food which can neither create Surfeits, nor generate Crudities. Let them also use such Substances as provoke Urine, daily eating well-boil'd Parsnips, Fennel, Pennyroyal, and Calamint; and, among Sea Substances, the Strombus, (*a kind of Shell-fish*) the Lobster, and the Crab. Let them also drink, for many Days, a Decoction of Eryngo-roots, and also of Dittany. The Water they drink should be of the purest Kind, and strained: Their Wine should be small and white, so that it may provoke Urine. They should use moderate Exercise, and Frictions in a Bath, impregnated with calcin'd Nitre, calcin'd Dregs of Wine, and Pumice-stone." *Trallian* is also very full and circumstantial, as to the Regimen of Nephritic Patients: See his Sentiments above.

The celebrated Secret of *Zecchius*, recorded in his Consultations, was undoubtedly borrow'd from *Trallian*, since it consists only of about a Pint of warm Water, drank before Dinner. And *Carolus Piso*, many Years before the Days of *Zecchius*, recommended warm Water, affirming, that after the first Stone was discharged, none would ever after be form'd, if the Use of warm Water was persisted in.

CAUTIONS and PRACTICAL OBSERVATIONS.

But as in the Cure, as well as the Prevention, of this Disorder, the chief Business of the Physician consists in adjusting his Medicines to different Constitutions, Ages, and Temperaments, and accommodating them to the particular Functions injured, and the several concurring Causes of the Disorder, I shall subjoin some Cautions and Observations, which will be found to be not only useful, but necessary in Practice. First of all, then, we are diligently and carefully to consider, that the Medicines used in the Cure of this Disorder are not equally fit and proper for all Constitutions; nor do they always produce the same Effect, or afford the same Relief, on account of the different and mutable State of the Fluids, and the peculiar Texture of the Solids depending upon that Difference, which is, by the *Greeks*, call'd *Idiosyncrasia*. For this Reason Medicines should sometimes be varied; since, in Process of Time, Nature becomes so habituated to one Medicine, that it often ceases to produce the same Effect it formerly did.

It has often happen'd, that Nature herself, without the Concurrence of Medicines, has unexpectedly discharged the Stone. Something analogous to this happens in Child-birth, when, in some Cases, Medicines are of no manner of Efficacy, till Nature herself come in to their Assistance: Hence it sometimes happens, that Quacks, with their insignificant Medicines, have acquired the Reputation of performing a Cure which was wrought by Nature herself. The Physician ought therefore to advert to this, that Nature alone often puts a Period to these violent Spasms, Pains, and Commotions; which is not to be ascribed to the Force of Imagination, since it may be accounted for from real physical Causes; for the great Art of Physic consists in making a due Estimate, with regard to the precise and lucky Moment in which Nature begins to act, and exert her Force for the Relief of the Patient: Hence it is sometimes advisable, especially when Medicines have for some time been exhibited without Success, to desist from their Use, that Nature may be allow'd to take her own Measures, since she often spontaneously, and unexpectedly, produces more happy Effects than the Physician can possibly do, by disturbing her Operations with his forcing and stimulating Preparations.

Tho' the more acrid and vehement Diuretics, and Provokers of Urine, such as the Preparations of Turpentine, Juniper, Amber, Garlick, Onions, and Parsley, are neither useful in preserving from the Stone in plethoric Patients, nor of any Service in a Nephritic Paroxysm, whether simple, or produced by Stones; but render the Disorder worse, and heighten the Symptoms; yet the prudent and cautious Use of them is not altogether to be condemn'd and laid aside; since in coarse, robust, moist, and sluggish Constitutions, especially when exhibited with a preservative Intention, they produce happy Effects, not only by strengthening the Tone of the renal Vessels, but also by discharging thro' the Kidneys a large Quantity of impure tartarous Serum.

As seasonable, moderate, and dry Gestation, or Motion, is highly assistant to Nature in protruding the Stones, and may be properly used after well-chosen Propellents, especially diluting Liquors, such as hot and cold Medicinal Waters, and Whey,

which, by their Weight, act so powerfully as to remove the Stone from its fix'd Seat; so it has been observed, that unseasonable Gestation, or Riding, has proved prejudicial to many, since, by removing the Stone from the Place in which it created no Uneasiness to the Patient, and altering its Position, so that its rough and pointed Surface more strongly irritated the delicate nervous Coats, Spasms so violent and terrible have been excited as sometimes to prove mortal.

There perhaps is not a better or a more efficacious Method of preserving from the Stone than seasonable Venesection, especially in Cases where the Body is naturally disposed to discharge too large a Quantity of Blood. This Remedy is, in some Cases, also highly proper in the Paroxysm itself; when, for Instance, a Plethora and quick Pulse are attended with an intense Heat, and a preternatural Thirst; for such is the Nature of intense Pain, that, in consequence of the violent Spasms it excites, the free Circulation of the Blood thro' the Veins is retarded, and impetuously carried in large Quantities to improper Parts: Hence arise Epilepsies, Convulsions, Deliriums, Apoplexies of the sanguine Kind, Discharges of bloody Urine, inflammatory Fevers, and other Disorders, of which we have too frequent Instances; all which might be prevented by a due and seasonable Venesection.

When Pains, arising from the Stone, happen in scorbutic Constitutions, in such as abound with impure and recrementitious Humours, or in those who are subject to a chronical purple Eruption, and when, under the very Nephritic Paroxysm, a scorbutic Impurity exerts its Force, various and highly dangerous Symptoms appear, which require the highest Skill and Caution in the Physician; nor, in this Case, can any thing be so properly prescribed as diluting and Pain-allwaging Liquors, such as Whey, either acidulated or sweet. The Patient must also abstain from every kind of Malt-liquor, and Wine of all Sorts; but I have observed, that, in such Cases, Whey moderately warm, and gentle Diaphoretics, were of singular Service.

However instantaneous Relief Baths may afford, or however necessary they may appear, yet they are by no means to be used in plethoric, full, and fat Constitutions, where there is at the same time a Difficulty of Breathing. Before Baths can, in this Case, become proper, the Plethora is to be removed, the Belly render'd soluble, and the Violence of the Pain mitigated.

Nephritic Pains are often accompanied with a convulsive Colic, arising from the Hæmorrhoids: The prudent Physician must be at the Pains to distinguish all these Circumstances, and proceed cautiously, both in pronouncing the Fate of the Patient, and in the Cure of his Disease. But what demands our particular Care and Attention, is the racking and intolerable Pain of the Intestines, which must be mitigated or removed by Venesection, the Application of Leeches, or by rendering the Body soluble by means of proper Clysters. It often happens, that when the Stone is thrust, by one continued and violent Impetus, thro' the Ureters, an intolerable Pain, accompanied with Loss of Strength, is excited in the whole Region of the Back and Abdomen; but the Pain immediately ceases when the Stone falls into the Bladder.

When the Pain has continued for a long time, and the Patient has lost his Strength; when old People are afflicted with this Disorder; or when it is brought on by Grief, and a Weakness of the Pulse is observed, that Opiates are to be shun'd like so much Poison, and none more carefully than the *Pilula de Cynoglossa*, is confirmed both by Reason and Experience. In these Cases it is better, and more advisable, to recruit and reinforce Nature by analeptic and moderately spirituous Waters, such as those of Mint, Baum, Lilies of the Valley, or of Cinnamon, without Wine; adding a Grain or two of Ambergrise, and of the Extract of Saffron: Wine may also be used, in Moderation, for the same Purpose. Externally also the weaken'd Tone of the Intestines must be restored, as much as is possible, by spirituous and balsamic Liniments.

Among the hot and mineral Waters, none, by reason of the calcareous Earth with which they abound, more powerfully dissolve and dislodge the tartarous Matter which is the Cause of this Disorder, than the *Caroline Springs*; which, at the same time, must be used very cautiously and circumspcctly. After the internal Use of these for a Month's time, I have seen above five hundred small smooth Stones, as large as Vetches or Lentils, discharged: But, after an Accident of this Nature, consolidating and gently-balsamic Medicines are absolutely necessary, in order to unite and incarn the Cavities left in the Kidneys, in consequence of the small Stones being dislodged. But I know, from numberless Instances, that the safest, both for Preservation and Cure, is the *Selteran Spring*; which, besides the Purity of its Waters, contains an alkaline Salt, and is superior to all other Medicines in the Cure of Wounds, and Imperfections of the Bladder. In Cases also where the Humours are fraught with a scorbutic Impurity, and the Parts at the same time are exulcerated, the Waters of the same Fountain, mix'd with Milk, and used for a sufficient time, are very proper.

BOERHAAVE'S

In order to the Cure of a Stone in the Kidneys, the Physician's Views must be directed to diminish the Stone; to procure its Expulsion; or, at least, to bring it into a Part, where it may reside, without giving exquisite Pain, as into the Bladder.

This is principally done by a moist, mild, thin, and moderately salt Diet; by drinking Liquors of an aqueous Nature, or Fluids of the like Kind; and by the vital Powers.

The Vegetables which *Boerhaave* recommends in this Case, and which he advises to be taken plentifully, boil'd in Broth, are these, and others possess'd of the same saponaceous Virtues.

Borage,	The Roots of Turneps,
Chervil,	----- Skerrets,
Gum Succory,	Sow-thistle,
Lettuce,	Vipers-grafs,
Parsley,	Dandelion,
The Roots of Carrots,	Yellow Goats-beard.

Amongst Liquors, Whey, Milk, and Buttermilk, of Animals fed on fresh Grass only, are principally recommended.

The Use of these is excellent, provided it be persisted in till a Diarrhea is brought on, which must be continued for some time, though it should reduce the Patient to a considerable Degree of Weakness; for this Method has frequently been known to cure inveterate Disorders of this Kind.

Boerhaave somewhere observes, that Oxen, Stall-fed, and kill'd in Winter, have usually stony Concretions found in their Livers, Gall-bladder, and biliary Ducts; and that in Cattle kill'd immediately after a Summer's Grass, these Concretions are seldom or never found. And hence he draws an Argument for the Efficacy of the young saponaceous Vegetables.

Experience, the Touchstone of Medicinal Applications, does not want the Confirmation of Reason. But it is entertaining, at least, to examine into the Reason of Appearances, when attended with any Degree of Abstruseness. It may not, therefore, be amiss to examine, why the saponaceous Spring Vegetables dissolve stony Concretions in the Body. I have in many Places remark'd, that some *Menstruum* is necessary to dissolve a Portion of the Earth, in order to render it small enough to enter the Pores of the Roots of Vegetables. It is not our present Business to consider what this *Menstruum* may be, having already discuss'd this Subject under the Articles *ACETUM*, and *BOTANY*. But whatever it be, we may reasonably suppose a Portion of it to reside in the Juices of the Spring saponaceous Vegetables, not so much alter'd in its Circulation through them, as to divest it of a Power of dissolving earthy Concretions, when taken into the Body, and assisted by the vital Forces. And as the Milk also of Animals, whose Food is Grass only, and Water, is, in a great measure, immediately produced from these vegetable Juices, may not Milk, Whey, and Buttermilk, be in some measure endu'd with a dissolving Power?

Another Method of bringing about the Expulsion of the Stone is, to relax the Parts by Baths, Clysters, and relaxing Liniments; to lubricate the Passages by moist, emollient, mild, and oily Medicines; to remove the spasmodic Stricture of the Fibres by Opiates and Anodynes; to propel the Stone cautiously by Diuretics, and moderate Motion.

In these Views the subsequent Forms are recommended by *Boerhaave*.

Take of the Leaves of Mallows, Marshmallows, yellow Mallows, Mercury, Pellitory of the Wall, Brank-urline, and Orache, each four Handfuls: Boil in a sufficient Quantity of Water for a Bath, to reach as far as the Loins.

Clysters of the same Decoction are to be injected, and large Quantities of the same are to be perpetually drank; for all these contribute to relax, open, mollify, and expel.

An oily Lubricating Decoction.

Take thirty sweet Almonds; twenty Pistachio Nut-kernels; Poppy-seeds bruised, three Ounces: Let the Almonds and Pistachio Nuts be blanch'd, and then bruised with the Poppy-seeds; after which let them boil in a sufficient Quantity of common Water for half an Hour; then let them be strongly beat together for some time; and afterwards add of Venice-soap, four Ounces; Liquorice, two Ounces. Let all boil together a little, and strain off the Decoction, which must amount to three Pints. Let the Patient drink half a Pint of this four times a Day, upon an empty Stomach; and afterwards let him walk gently a little time.

An aperient Anodyne Opiate.

Take of Syrup of the Five opening Roots, an Ounce and an half; of solid Laudanum, two Grains; of purify'd Nitre, Vol. I.

twenty Grains; of distil'd Parsley-water, six Ounces: Mix together. Let the Patient take half an Ounce every Hour.

A propellent Diuretic Decoction.

Take of red Chiches contus'd, two Ounces; Parsley-seeds, an Ounce; Roots of Quich-grass, and of Parsley, each four Ounces; Leaves of Agrimony, Golden-rod, Male Speedwell, each half an Handful; Liquorice, an Ounce: Boil for half an Hour, with a sufficient Quantity of Water for three Pints of strain'd Liquor; to which add of Nitre, two Drams. Let the Patient drink two Ounces every Hour.

Thirdly, Regard must be had to the Symptoms. Thus, if there is an Inflammation, it must be remov'd, or at least moderated, by Bleeding, relaxing Remedies, and the other Methods specify'd under the Article *INFLAMMATIO*. The Pain must be mitigated by anodyne Emulsions; and the Asperities of the Stone must be guarded by oleous, saponaceous, and glutinous Remedies.

Boerhaave is of Opinion, that no Dependence is to be had on Lithontriptic Medicines.

Whilst the Stone is falling from the Pelvis of the Kidney thro' the Ureter to the Bladder, the above-specify'd Method and Medicines are proper; particularly Bleeding, Clysters, and Fomentations. *Boerhaave* *Aph.*

I must farther remark, that few Fits of the Stone occur, without inducing an absolute Necessity for Bleeding immediately, which generally gives great Relief.

Laxative and emollient Clysters, in which Turpentine is an Ingredient, are highly necessary; and these are to be repeated, or not, according to the State and Constitution of the Patient, and the Effects of the first; which the Physician, who inquires into these Circumstances, can only judge of rightly.

Next to these are lenitive Purges, prepared, for Example, of Manna dissolv'd, and quickened with some of the Cathartic Salts, and whatever else the Physician shall think adapted to the Case.

Opiates, also, are highly necessary, in order to take off the spasmodic Contraction of the Parts where the Stone resides, and to alleviate the Pain; but I think they should seldom or never be administer'd, without the above-mentioned previous Evacuations. Amongst Opiates *Matthew's* Pill is generally most esteemed in these Cases, on account of the Soap of Tartar, and other opening Ingredients. The usual Dose is betwixt six and ten Grains. But the Dose, and Times of Exhibition and Repetition, can only be determined by the attending Physician.

As it may be agreeable to gouty People afflicted with the Stone, to know how Dr. *Sydenham*, perhaps the best practical Physician that any Age has produced since *Hippocrates*, treated himself under this Circumstances a Part of his Method is specify'd under the Article *ARTHRITIS*; the rest is contain'd in the following Dissertation.

Though it may seem to argue Indiscretion to publish an Observation which I have experienced in myself alone, yet it is hop'd no equitable Person will be displeas'd with me, who have suffer'd so long, and so much, from bloody Urine, from a Stone in the Kidneys, for being moved to compassionate those who labour under the same Disease, and to communicate those Remedies which have given me Relief, though they may, perhaps, seem common, and not worthy of Notice.

In the Year 1660. I had the longest and severest Fit of the Gout I ever had in my Life, so that I was constrained for two Months in the Summer Season to lie always in or upon a soft Bed; whence, towards the Close of the Fit, I began to feel a dull heavy Pain, especially in the Left Kidney; and sometimes, though very seldom, in the Right. And after the Gout went off, the Pain in the Kidneys remain'd, and attack'd me at Intervals, which, though it was not very sharp, made me fear the Stone; for I had hitherto escap'd those Fits which are attended with severe Pain along the Ureters, and violent Vomiting. But though these Signs of the Stone in the Kidney appear'd not hitherto, yet I had Reason to believe I had a large Stone in one of them, which, being too big to pass into the Ureters, occasioned the above-mentioned Symptoms. And several Years afterwards I found I was not mistaken; for having walk'd considerably, and for a long time, in the Winter Season, in 1670. soon after the breaking of a severe Frost, I made a bloody Urine directly, and constantly did so whenever I walk'd much, or was carried in a Coach over the Stones, though the Horses went slowly; but this Symptom did not seize me when I travell'd in a Coach in unpav'd Roads, how long a Journey soever I made.

The Urine I voided on these Occasions, though it look'd very bad at the time of making, so as to resemble Blood, yet soon after it became clear at the Top, like natural Urine, the Blood falling to the Bottom by itself in Clots. To relieve this Disorder, I had a large Quantity of Blood taken from my Arm; and,

and, after taking some Purges, had recourse to several Sorts of cooling, incrassating Remedies, along with a proper Regimen, and carefully forbore all sharp, pungent, and attenuating Liquors. But having received no Benefit from these, and many other Remedies, which it would take up too much Time to enumerate, and fearing to drive the Stone forwards by Steel-waters, as suspecting it was too large to be expel'd thereby, I at length lost all Hopes of relieving myself by this Way, especially having found, that some of my Acquaintance hastened their Death by fruitlessly endeavouring to cure this Complaint by such Medicines; for which Reason I resolv'd to desist from all farther Trials, unless by way of Prevention, by avoiding all Motion of the Body as much as I could.

But happening afterwards to recollect the great Commendations which some Persons have bestow'd on the Seed of the Ash-tree, for its Stone-dissolving or Stone-breaking Virtue, I imagin'd, that if the Seed had so much Virtue, the Manna thereof might probably have more. For the Manna which comes to us, according to Mr. Ray, and other earlier Writers, is neither an aereal Honey, nor a certain heavenly Dew, but rather a Liquor issuing from the Leaves, Branches, or Trunk of the *Galabrian* Ash-tree; of the Truth of which Mr. Ray was rather satisfied, whilst he was on his Travels to *Italy*, by a Physician, who frequently gathered Manna from the Branches and Leaves of these Trees, first closely covered with Linen. Accordingly, to make the Trial, I dissolved two Ounces and an half of Manna in a Quart of Whey, and drank it; and took a little Lemon-juice between whiles, as well to make it operate more speedily, it being ordinarily a slow Purgative, as to render it more agreeable to the Stomach. It is hard to express the Ease I perceived in the Region of the Kidneys, from this Medicine; for though the Pain was not continual before, yet I felt a troublesome Weight. Encourag'd by this Success, I took this Purgative every Week, on a set Day, for some Months, and found a manifest Amendment after every Purge, till at length I could bear more shaking in a Coach; and indeed I was free from this Symptom till last Spring, at the Beginning of which it return'd, occasion'd by my having had the Stone all the preceding Winter, and my Inability to prevent its Violence I was constrain'd to abate of my ordinary Purgings. And now I doubted whether I should have recourse to it again, as finding that the mildest Purge certainly occasion'd a Fit of the Gout, because the whole Substance of the Body, in these latter Years, had, in a manner, degenerated into Nourishment for this Distemper. But at length I recollected, that I might safely resume my former Method of taking Manna once a Week, provided I took an Opiate in the Evening, after the Operation, to quiet the Tumult rais'd by the Purgative. Accordingly, in the Morning, I drank two Ounces and an half of Manna dissolved in a Quart of Whey; and at Night took sixteen Drops of liquid Laudanum in Small-beer; and repeated the Manna and Laudanum in this manner twice a Week, for three Weeks. But afterwards I took the Manna only once a Week, because it discharged such Plenty of foul Humours, as to leave little Fear of the Gout. And Reason intimating, that if Manna was possess'd of any Stone-dissolving or Stone-breaking Virtue, its Efficacy, on which I depended, must needs be lessened, in some measure, by so powerful an Astringent as Laudanum is, I thought it best to omit taking the Opiate, as I only purged once a Week.

I have continued this Method for some Months, always purging on the same Day of the Week, and would not upon any Account be persuaded to break it. But though the Pain of my Back abated as formerly, upon taking the first Purge, yet soon after repeated Purging brought on some Symptoms of the Gout, and sometimes affected the Limbs, and sometimes the Bowels; but Laudanum effectually check'd these Motions of the Distemper. This Method, however, having hitherto been successful, I judg'd it proper to continue it, both to prevent the Return of the bloody Urine, and to carry off a Part of the Matter which forms the Stone. And, in the End, it answer'd my Expectation, having never had this Symptom since my first Publication of this Treatise, and therefore I left off the Manna entirely.

With respect to Purging, therefore, in case of bloody Urine, and provided only Manna be used according to the Method above deliver'd, I must retract an Assertion I formerly publish'd in my Treatise on the Gout, which is, that it is absolutely improper to purge gouty Persons, either at the Beginning, Declension, or in the Intervals of the Fits. For I did not then recollect, that the Fit, which I fear'd might be occasion'd by the Purgative, might be prevented by giving an Opiate at Night. Nevertheless, if the Gout only be attended to, all manner of Evacuations are very pernicious therein, and therefore not to be used, unless the above-mentioned Symptom requires them.

To these Observations I will add a few Particulars relating to the Regimen and Diet, which should seem proper in both these Distempers; for I would not omit mentioning any thing that may be serviceable to Persons in my Condition. In the Morn-

ing, after I rise, I drink a Dish or two of Tea; then I go out in my Coach till Noon; and, at my Return home, dine moderately upon any kind of Meat I like, that is easy of Digestion; for Moderation is principally necessary. I drink a little more than a Quarter of a Pint of Canary immediately after Dinner every Day, to promote Digestion, and drive the Gout from my Bowels. In the Afternoon I go out again in my Coach, and, when Business permits, take a Turn into the Country, two or three Miles, for good Air. A Draught of small Beer serves me instead of a Supper; and I drink another Draught after I am in Bed, and about to compose myself to Sleep, in order to dilute and cool the hot and acrid Humours lodg'd in the Kidneys, which breed the Stone. I always prefer small Beer brew'd with Hops, to that which has none; because, tho' unhopp'd small Beer is smoother and softer, and so better suited to bring away the Stone from the Kidneys, yet that which is brew'd with Hops, on account of the Stypticity it receives from the Hops, is less subject to breed Gravel and calculous Matter, than that which has none, as being more viscid and slimy. On my purging Day I dine upon a Chicken, and, notwithstanding, drink my Canary as usual. I go to Bed early, especially in the Winter Season; this being one of the best Helps for promoting Digestion, and preserving the proper Order of Nature; whereas, on the contrary, sitting up late weakens all the digestive Faculties in aged Persons afflicted with any Chronic Disease, and injures their vital Principle to a Degree not to be easily remedy'd. And, to prevent bloody Urine from the Stone, whenever I am oblig'd to go very far in my Coach upon the Stones, (for the longest Journey in unpav'd Roads does me not the least Hurt) I always drink a large Draught of small Beer before I set out, and another in the Way, if I am abroad a considerable time; by which means I secure myself pretty well from bloody Urine.

Lastly, we are to take Notice of the great Danger which some Persons, who have the Gout and Stone, run, by unadvisedly taking Manna dissolv'd in the purging Mineral Waters; for, tho' being taken this way, it works quicker, and sits easier on the Stomach, yet these inconsiderable Advantages are no Equivalent for the Mischief otherwise occasion'd by the Waters. For if the Stone in the Kidneys be too large to be forc'd thro' the Ureters into the Bladder, these Waters generally occasion a Fit, which continues, not without endangering the Life of the Patient, till the Stone gets back again into the Pelvis. Steel Waters likewise are unsafe, unless it be certainly known beforehand, that the Stone is small enough either to slip, or force its Way, thro' the Ureters; which, to the best of my Judgment, can only be learn'd with Certainty from hence; viz. if the Patient hath already had a Fit of the Stone, (which consists in a very sharp Pain in one of the Kidneys, extending thro' the whole Duct of the Ureters, and accompany'd with violent Vomiting) he may be assur'd, that the Pelvis, instead of having a large Stone in it, rather contains a Number of small Stones, one of which will fall occasionally into the Ureters, and cause a Fit, which generally lasts till it is forc'd into the Bladder. In this Case, I say, there is no better Remedy, either to prevent the Increase of small Stones, or to expel them from the Kidneys, than drinking Steel-waters plentifully every Summer.

But, as Persons may often be seiz'd with a Fit of the Stone, when these Waters are either not procurable, or at an improper Season for drinking them, they are to be treated according to the following short Method. The Patient being sanguine, and not aged, take ten Ounces of Blood away from the Arm of the pain'd Side; then let a Gallon of Posset-drink, in which two Ounces of the Roots of Marshmallows have been boil'd, be drank with the utmost Expedition, and the following Clyster injected.

Take of the Roots of Marshmallows, and the white Lily, each an Ounce; the Leaves of Mallows, Pellitory of the Wall, Bear's-breech, and Chamomile-flowers, each an Handful; the Seeds of Flax and Fenugreek, each half an Ounce: Boil them together in a sufficient Quantity of Water to a Pint and a half; in the strain'd Liquor dissolve brown Sugar, and Syrup of Marshmallows, each two Ounces: Mix the Whole for a Clyster.

When the Patient has thrown up the Posset-drink, and the Clyster has done working, give a sufficient large Dose of liquid Laudanum, for Instance, twenty-five Drops, or fifteen or sixteen Grains of *Matthew's* Pill. But Bleeding is not to be us'd in aged Persons, worn out by some inveterate chronic Disease, and ancient Women, subject to the Vapours, especially if they void black gravelly Urine at the Beginning of the Fit. Nevertheless, in other respects, this Method must be closely follow'd.

But, to return to the Stone, supposing it a large one, which is our present Subject: If the Patient hath never had a Fit, on account of the Stone's being too large to quit the Pelvis, Steel-waters will not only do no Service, but cannot be us'd without immediate Danger, for the Reasons above-mention'd. Nor do Mineral Waters succeed better in gouty Persons, if they be advanced in Years, as such mostly are, and withal of a weak and phlegmatic

phlegmatic Constitution; the Strength of Nature being sometimes impair'd to that Degree in such Subjects, as to give great Reason to apprehend the total Loss thereof from such a Quantity of Water. But whether the ill Consequences, happening to Persons of this Constitution, proceed from this, or some other Cause, I am thoroughly persuaded, that abundance of Persons, who have been extremely debilitated, and in a manner worn out by this Distemper, have been destroy'd by these Waters. *Sydenham.*

The Stone in the BLADDER.

From ARETÆUS.

No Disease affecting the Bladder is of a gentle Nature; for, as to acute Disorders of that Part, such as Inflammations, Wounds, Convulsions, and acute Fevers, they are all mortal; and an Ulcer, an Abscess, the Palsy, or a large Stone in the same, are incurable. The Stone is not to be dissolv'd by any Potion, or lithontriptic Medicine, nor taken out by cutting, with any Safety; for the fine Membranes of the Bladder must, at the same time, be cut, which Operation kills the Patient on the same Day, or carries him off in a few Days with Convulsions and a Fever. If the Stone be not cut out, an Ischury, Pain, Fever, and Colliquations, destroy the Patient; or, if it be of no considerable Bigness, the Suppression of Urine is the more obstinate, because it the more easily falls into the Neck of the Bladder, and intercepts the Passage of the Urine; and tho' such a Stone may be extracted with less Danger than a larger, it is necessary to cut the Bladder, the Consequence of which, if not Death, is a continual Efflux of the Urine, which, tho' no dangerous Disorder, is yet insupportable to a free Person, who knows not how to live under a perpetual Dribbling, which molests him whether he sleeps or wakes, and is very troublesome in walking; but a Multitude of small Stones may be cut out with Safety.

If a Stone grows to the Bladder, it manifests itself by the Uneasiness, and sometimes Pain, which it excites, and a Weight which is felt, tho' not accompany'd with a Dysury; but it does not adhere to the Bladder, there is also a Dysury. All Stones may be known by the sandy Sediment in the Urine; the Pudenda also project. The Patients void their Urine with Pain, by reason of the Obstruction from the Stone, and handle and attract the Pudendum, as if they would pull out the Stone and the Bladder together; the Anus suffers by Consent, being affected with an Itching. The Intestinum Rectum is protruded by the violent Efforts of the Patient, who imagines himself on the point of voiding the Stone; for there is so near a Vicinity between the Bladder and the Anus, that they mutually affect each other; wherefore, in an Inflammation of the Anus, the Bladder labours under a Suppression of Urine; and, in Diseases of the Bladder, the Anus will discharge nothing, tho' the Belly be not costive. *Aretæus, περι ἀν. κ. συμ. 7^{ον}. παθ. Lib. 2. Cap. 4.*

From ALEXANDER TRALLIANUS.

The Stone in the Bladder afflicts the Patient by Fits at certain Times, after the same manner as the Stone in the Kidneys; but the former is more frequent in Children than adult Persons, and does not owe its Rise to so great a Heat, but rather to a grosser Matter, proper for the Generation of Stones, which readily forms Concretions, by means of the natural Heat. Our main Intention, therefore, must be to correct the Grossness of this Matter by Attenuants, and to prevent any considerable Collection of it, which is promoted by nothing so much as an inordinate Voracity, and stirring of the Body after eating.

The Signs of the Stone in the Bladder are, a crude and whitish Urine, with a sandy kind of Sediment, resembling Scurf. Besides, the Patients are very subject to scratch the Pudenda, and violently and frequently to distend them; and that most of all, when they have occasion to make Water. *Alexander Trallianus, L. 9. C. 7.*

From LOMMIUS.

The Pain which proceeds from the Stone in the Bladder is most afflicting, because it lasts a long time, and makes frequent Returns at certain Intervals. While it holds the Patient, there is an extraordinary Sensation of a Weight, if the Stone be large, and especially when the Body is mov'd, or a sort of Tiltation about the Pubes and Perineum. There is a Difficulty of Urine, with a continual Desire of making Water, and a kind of Strangury, so that the Urine seems hardly possible to be restrain'd, and yet, as soon as it begins to flow, is on a sudden quite intercepted; and thus is the Evacuation perform'd with continual Interruptions. During this time a Pain is felt throughout the Duët of the Penis, but oftentimes seizes only the Glans, and is most tormenting when the Patient has just made an End of making Water; at which Time he has also a Desire of going to Stool. From some the Urine comes off more freely when they stand upright, than when they lie upon their Back, if the Stone be large. Others evacuate bending forward, and endeavour

to ease their Pain by handling and extending the Pudendum. Women often rub the external Parts of the Pudenda with their Hands, and, by applying a Finger to the Neck of the Bladder, now-and-then feel the Stone. Many Patients, in the Midst of their Pains, cross their Feet one over another by turns. The Urine which comes off is white, thick, and turbid, with a purulent or mucous Sediment; sometimes Blood, or a bloody concreted Matter, is discharged with it. This Disease is more incident to Children than adult Persons, to Men than Women. The Stone of the Bladder is whiter, larger, and harder, than that of the Kidneys: A lesser Stone more easily slides into the Neck of the Bladder, and more pertinaciously retains the Urine, than a larger; for the latter, by a proper Position of the Body, or by introducing an Instrument, may, with no great Difficulty, be remov'd from the fore-mention'd Part. *Commius, Med. Obs.*

From BOERHAAVE.

We may know, that a Stone is got into the Bladder, by a Cessation of the Signs of a Stone passing from the Kidney to the Bladder thro' the Ureter; and by its Effects, when in that Organ; which are, Inflammation, with all its Symptoms; Pressure upon, and Fretting of the internal Membrane; Ulcerations; purulent Urine; Strangury; entire Obstruction of the Urethra, insomuch that the Patient cannot discharge his Water, unless in a supine Posture; a hectic Fever, and Consumption; a Pain is felt before, during, and after the Discharge of Urine, which does not come away in a full Stream, but, as it were, dribbling, and with many Interruptions; and which is white, and deposits a mucous, thick, heavy Sediment, in considerable Quantities; an uneasy Itching is felt in the Glans of the Penis; and the Discharge of Urine is attended with a *Tenismus*. But the most certain Method of discovering a Stone in the Bladder is by searching; for the Method of doing which, see LITHOTOMIA.

The Cure. From ARETÆUS.

If the Suppression of Urine be caus'd by the Stopping of its Passage by Stones, they must be remov'd by the Instrument call'd the *Catheter*, that a Passage may be open'd for the Urine to run off, unless there be an Inflammation, in which Case the Passage will not admit an Instrument, and, besides, is subject to be wounded by the Catheter. But if this Method be impracticable, and the Pain insupportable to the Patient, we must have recourse to cutting the *Trichas*, (*τρίχας*, some read *πληχάδα*, which, according to *Ruffus*, is the Place between the Scrotum, the Neck of the Bladder, and the Thigh) and the Neck of the Bladder, that the Stones may fall out, and so the Urine be evacuated. This done, the Wound must be cicatrized, if it can be done; if not, it is, however, better for the Patient to be troubled with a running Sore all his Life, than to be suffer'd miserably to expire with Extremity of Pain. *Aretæus, περι θεσπ. 6^{ης}. παθ. Lib. 2. Cap. 9.*

From ALEXANDER TRALLIANUS.

As for Medicines, the Blood of a Goat, rub'd warm upon the Part, is of excellent Service; but a better way is, to apply the Blood of a He-goat upon the Bladder; tho' the Method which is by far the most convenient and effectual, is, to rub the Parts with it in the warm Air of the Bath, and to bind it thereon; and this must be done not only once, but often, and at Intervals. *Trallian. Lib. 9. Cap. 7.*

From BOERHAAVE.

As soon as we have reason to believe, that a Stone is passed thro' the Ureters into the Bladder, we must use our utmost Endeavours to procure its Expulsion by the Urethra; otherwise it will increase in Bulk, and become more troublesome. This is done by the same Methods and Medicines that are recommended above for a Stone in the Kidneys and urinary Duët, except that the Topics are to be apply'd to the Region of the Bladder; to which add Baths, and Clysters of Oil; Injections of Oil into the Urethra; and it will be of Service to rub the external Part of the Urethra with the same Oils.

If a Stone is fix'd in the Urethra, and will not move forwards, the Part is to be relax'd by Injections of Oils frequently repeated, and by the most emollient and relaxing Fomentations which can be contriv'd. The *Egyptians* have a Method of distending the Urethra by blowing into it, and then inviting the Stone forwards by Suction. It may also be press'd gently forwards, or brought out with an Instrument shap'd like an Ear-probe; or, if that will not do, the last Remedy is to cut the Urethra or Perineum.

If the Stone sticks in the Neck of the Bladder, it may be put back by the Catheter. *Boerh. Aphor.*

The Method of extracting a Stone out of the URETHRA.

From HEISTER.

Sometimes, in Persons afflicted with the Stone and Gravel, a small Stone slips into the Urethra, or Passage of the Urine, and

and there sticks, where it excites not only violent Pains, but a great Difficulty of Urine, and sometimes a total Suppression of the same; in which Case the lamentable State of the Patient calls upon the Physician to use his best Endeavours to expel the Stone. There are various Parts of the Urethra in which the Stone may be seated: Sometimes it lies in the Beginning of the Urethra, behind the Scrotum, about the Perinæum, in the Neck or Sphincter of the Bladder; sometimes about the Middle of the urinary Duct, before the Scrotum, and sometimes not far from the End of the Urethra. Sometimes the Stone is lodg'd in a peculiar Expansion, or Bag of the Urethra; such a one is describ'd by *Le Dran*, *Obs. Chir.* 79. *Tom.* 2. and *Dionis*, in his Surgery, mentions some of the like Kind; and I myself, this present Year 1737. discover'd Stones in such a Bag before the Scrotum; and, what is seldom known, cut two out of one little Bag under the Urethra, which are represented (*Tab.* 48. *Fig.* 16. and 17.). In what Part the Stone is detain'd, may be judg'd partly from the Pain, and partly from Searches made with the Fingers or Instruments. The Cure may be attempted various Ways: Sometimes internal Medicines, which provoke Urine, and, at the same time, external ones, as Fomentations, Cataplasms, Bathing, Clysters, and the like, are administer'd, and continu'd for some time. If all these prove ineffectual, the next Attempt is to moisten and lubricate the Inside of the Urethra by Injections of Oil of Olives, or Oil of sweet Almonds, that the Passage being render'd slippery, the Stone may the more easily slide off; or the Patient is put into some emollient Bath, with the same View. Some bind the Penis behind the Stone, and then distend the Forepart of the Urethra by strong Inflation, in order to enlarge the Passage for the more easy Expulsion of the Stone. This Method of Cure is practis'd by the *Egyptians*, as we are assured, among other Authors, by *Prosper Alpinus* in his *Medicina Egyptiorum*, *Lib.* 3. *Cap.* 14.

If the Stone cannot be expel'd by these Remedies, but the Difficulty of Urine is rather exasperated by them, it will be convenient to try some other powerful Remedy. First, then, if the Stone be detain'd in the Neck of the Bladder, it may be cut out by making a Section in the Perinæum, where it is perceiv'd by the Touch; but, because many are very much afraid of an Instrument which carries an Edge, the Stone may be push'd back into the Bladder by introducing the Catheter. However, since it is to be fear'd, that the Stone will increase in the Bladder, and, by that means, expose the Patient to far greater Danger, I should prefer Section. So, also, if the Stone should happen to stick too fast in this Place to be repel'd by the Catheter, and so reduce the Patient to Extremities, or if we do not think it advisable to repress it for the Reason aforesaid, it must be artfully extracted by the Section call'd the *Apparatus minor*, or *lesser Apparatus*; one or two Fingers being introduc'd into the Anus, in order to sustain the Stone; for oftentimes there is no other Way to save the Patient's Life. If the Stone be detain'd near the Glans, the best Method, after using the Remedies above propos'd, is, first to lubricate and relax the narrow Passage, by repeated Injections of Oil into the Urethra, and then, with the Fingers, to press the Stone forwards, or attempt its Extraction, especially in Boys, by Suction with the Mouth of some Woman, Nurse, or Assistant; for, by this means, all Wounds, Cicatrices, and Fistulas of the Urethra, are happily prevented. If the Stone sticks near the End of the Passage, it is to be taken with the Forceps, Hook, or some sort of Ear-probe, (see *Tab.* 27. *Fig.* 14.) and gently drawn forth. If this be impracticable, it will not be amiss to try the Instrument so much recommended by *Marini*, and describ'd by him (see *Tab.* 50. *Fig.* 7.). Of this Instrument the Part (A) is cautiously introduc'd into the Urethra, beyond the Stone, of which it takes hold; then the Operator takes the Part (B) in his Hand, and gently pulling, draws along the Stone, and extracts it. But if either an Inflammation, or the Bulk of the Stone, should, contrary to Expectation, render all these Methods ineffectual, we are directed by *Tulpius* and *Garengeot* to make use of Section. And *Garengeot*, in such a Case, immediately cuts the Extremity of the Glans with the Scissars, and then introducing a Probe, or Hook, into the Wound, extracts with it the Stone; after this he washes the Wound with Wine, and dresses it with Lint and some glutinous Balsam.

If none of the Methods before propos'd prove successful for extracting the Stone, as it often happens, when it is detain'd in the Middle of the Urethra, and there is Danger, lest the Difficulty of Urine, with the most intense Strainings to discharge it, and the tormenting Pains, should, in a short time, destroy the Patient, there is but one Remedy left, and that is, to make an Incision in that Part of the Penis where the Stone lodges, and, by that means, extract it. The Manner of Operation is thus: The Extremity of the Skin, as *Celsus* formerly advis'd, is very much drawn forwards; or, as others advise, retracted; and the Glans being by this means cover'd, or laid bare, the Penis is ty'd behind the Stone, in order to prevent the Stone from being forc'd back by the Hands of the Operator, when apply'd upon the Penis. The Operator then sets the Thumb of his Left Finger

against the Stone, in such a manner as to hinder it from giving way forwards, and, with his Right Hand, makes a strait Incision in the Side of the Penis; and then, with his Fingers, or some Instrument, as the Forceps, Probe, or Hook, pulls out the Stone. This done, the Skin is set loose, and the Wound, after being anointed with some proper vulnerary Balsam, is cover'd with a Plaister. By this Way of Management the found Part of the Skin comes to cover the Incision in the Penis, the Urine flows the natural Way, and the Conglutination of the Wound is promoted. When a Wound requires to be made a little larger than ordinary, the best way is to introduce a Leaden Pipe into the Urethra beyond the Wound, and to keep it there for some time for the Reception and Emission of the Urine. For if this should be suffer'd to flow by the Wound, it is very much to be fear'd, that its Acrimony would excite sharp Pains, and an Inflammation, by which the Conglutination of the Wound would be considerably retarded, and a Fistula might be generated in the Urethra. But a very good way to preserve the Wound from the pernicious Effects of the Urine, is, to drink very sparingly for some Days before and after the Operation. As for making the Incision in the Side of the Penis, it is done for very good Reasons; for, if it were made in the under Part of the Penis, the Wound would be much more liable to be incommoded by the Urine; and to make an Incision in the upper Part would be very unadvised, because of cutting the cavernous Bodies of the Penis; whence an immoderate Hæmorrhage, besides other pernicious Consequences, might justly be fear'd. *Albucafsi*, formerly a very celebrated Physician among the *Arabians*, shews a Way to break a Stone which sticks in the Urethra, by perforating it with a sort of Terebra, which he delineates; but if he happen'd to fail in this Attempt, he ty'd the Penis on both Sides near the Stone, to prevent its giving way on either Side, and then cut it out.

Thus we have explain'd the common Method of cutting the Urethra for extracting the Stone. We shall now give some Account of a new Way invented by *Thibaut*, formerly a very celebrated Surgeon of *Paris*, and describ'd by *Garengeot*, which was this: He took the Penis in his Left Hand, and made an Incision on the Side; then, with the Knife, he separated the cavernous Body from the Urethra, in which he afterwards made a strait Incision in the Place where the Stone was lodg'd, which is commonly under the cavernous Body, and, extracting it with the Hook or Forceps, he anointed the Wound with some glutinous Balsam, and then applying Lint and Compresses, carefully bound up the Whole with a Fillet. By this Method, the entire Part of the cavernous Body is brought to cover the Incision in the Urethra; and the Lips of the Wound, as they assert, sooner unite, and come to a Coalescence.

When the Stones are lodg'd in a peculiar Bag, the best way, in my Opinion, is, to make an Incision in the Place where we can most conveniently (and that sideways) have Access to them; for thus, thro' a pretty large Wound, I extract'd the Stones above-mention'd, which you see represented (*Tab.* 48. *Fig.* 16, 17.). The Cavity of the Bag I first treated with a Digestive, then with Corrosives, as red precipitate Mercury, and sometimes cleansed it with Lapis Infernalis, and at last heal'd it with Balsam of *Cajupi*, and little glutinating Plaisters. But Conglutination, in this Case, is sometimes very difficult, as appears from *Le Dran*, *Obs.* 79. where several ways of Healing were try'd to no Purpose. *Heister Chirurg.*

The Case refer'd to by *Heister*, in *Le Dran*, is very remarkable, and deserves Notice.

Towards the End of the Year 1722. a Lad, sixteen Years of Age, perceived a small Swelling in the *Perinæum*, but gave no Attention to it, as it was not painful.

Some time after, he went a Journey on Horseback, and the Pressure of the Saddle against the *Perinæum* forced a Stone out of it, of the Bigness of a Pea, which pass'd thro' the Skin and Urethra, both being worn out by the reciprocal Pressure of the Saddle and the Stone; and the Urine, distilling thro' this Aperture, form'd a Fistula.

Soon after, the Patient perceived a Swelling at the Bottom of the Scrotum, on the Left Side; and, finding it to increase daily, he shew'd it to a Surgeon of his Acquaintance, who look'd upon it as venereal, and propos'd a Salivation: He consented to this Proposal, and went thro' it without receiving the least Benefit. During this time the Fistula closed, and the Urine pass'd no longer that Way, which might perhaps happen from the daily Augmentation of the Volume of the Tumor.

The Occasion of this Augmentation was a fresh Stone, which, being stopp'd in that Place, and perpetually moisten'd by the Urine, was considerably increased. At length, in *December* 1725. the Patient straining to lift a great Weight, he felt a violent Pain in the *Perinæum*, and, putting his Hand to the Part, felt something hard which had pierced the Skin: He used his Endeavour to extract it with his Nails, but could not succeed; but, as the Stone was soft, he crush'd a Part of it in Pieces (whence we may judge what Situation it had kept during its Stay there). He was much incommoded by it for eight Days, not being able to sit without a violent Pain; and at length, in rising from his Seat,

Seat, perceived the whole Stone to come out. He came to *La Charité* the next Day, and gave me an Account of his Distemper, producing the Stone, which I preserve for the Rarity of the Case: It weighs an Ounce and fifteen Grains, is almost of a triangular Figure, two Inches and a half from one of the Angles to each of the other two, and two Inches from each Angle to the Sides subtending them; and three Quarters of an Inch thick.

It seems surprising, that an extraneous Body should lodge so long, without causing either Pain, or Difficulty in making Water. By examining the Stone you may discover the Reason: There is a Depression in it, on that Side next the *Os Pubis*, and probably the Urine flow'd freely by it.

Tho' the Lips of the Wound, thro' which the Stone pass'd, were approach'd, the Hole was still large enough to admit of my Finger. I felt a large Cavity where the Stone had lodged, which was formed by a Dilatation of the Urethra; and I imagined, at first, that the Stone, when it was small, came from the Urethra thro' the Hole by which the former had pass'd, and then had increased between the Urethra and the Skin; but my Finger undeceived me, and convinced me, that it had grown in the Urethra itself; for, besides feeling the whole Circumference very smooth, as it grew narrow, it guided my Finger almost behind the Scrotum, where the Dilatation ended. The dilated Urethra was very thin in that Part where the Stone had lodged, and a Callosity was to be felt on both Sides, without any Sinus. This Circumstance proves, that the Urethra was not open'd, but when the Stone came out; for, if it had been open'd before, the Urine would undoubtedly have form'd Sinuses and Fistulas in several Parts of the Perineum, and here we had none; from whence I infer, that the Callosities at the Side were occasion'd only by the Pressure of the Stone.

I had recourse to generous Remedies and Topics to dissolve them, such as emollient Cataplasms, applied to the *Perineum*; and that the Urine, by passing that Way, might not wet the Flesh and the Dressings, and that it might not be lodged in the Cavity from whence the Stone proceeded, I introduced an *Algaly* into the Bladder, and there left it. After I had used the Cataplasms two or three Days, I substituted resolvent Plaisters in their stead, and put small Dossils into the Wound, cover'd with melted Diachylon; with the Gums; and the Mucilage-plaister. All the Hardness decreased in less than three Weeks; after which I used only Injections, with Barley-water, and vulnerary Water, every Day. But my Attempts were fruitless, for nothing could close the Urethra, and cicatrize the Fistula. *Le Dran*.

An *Algaly* is a sort of hollow Probe, or *Catheter*.

Dr. *Hale* has obliged the World with an Account of an Instrument of his own Invention, for extracting a Stone out of the Urethra.

While I was, says he, intent upon these Experiments on the Calculus, it occur'd to my Thoughts, that large Gravel-stones, which often stick for several Days in the Urethra, to the great Torment of the Patients, and which they cannot sometimes be delivered from without cutting them out, might be drawn out by the following Instrument.

I cut off the lower End of a strait Catheter, which made it a proper Canula for a Stillet or Forceps to pass thro'; the lower End of the Forceps was divided into two Springs, like Tweezers, whose Ends were turn'd a little inwards: These Springs were made of such a Degree of Tenderness and Pliancy, as not to bear too hard against the Sides of the Urethra, by their Dilatation.

When this Instrument is used, the Springs are drawn up within the Canula; which being pass'd into the Urethra, as far as to the Stone, the Canula must then be drawn back, so far as to give room for the Forceps to dilate; which dilated Forceps being then thrust down a little farther, so as to embrace the Stone, then the Canula must again be slid down, to make the Forceps take fast Hold of the Stone, so as to draw it out.

I sent this Instrument to Mr. *Ranby* to have his Opinion of it, who tells me, That, upon repeated Trials, he found it extracts these Stones with great Ease and Readiness; and that it is so well approved of by other Surgeons, that many of them make use of it.

This strait Instrument will, therefore, serve to extract such Stones as are lodged, after they have pass'd the Turning at the *Os Pubis*; and I am informed, that they are aptest to lodge in those Parts of the Urethra which are within the Reach of this strait Instrument: But if it should lodge a little beyond the Turn at the *Os Pubis*, it might probably be practicable to extract them thence by bending this Instrument, as the common Catheters are bent: If the Stillet were Silver, it would bend the more easily.

Mr. *Ranby* is of Opinion, that this Instrument may be farther useful, in case of a Stricture or Contraction of any Part of the Urethra, viz. by thrusting the Forceps into that Stricture, where, by continuing some time, the constant Tendency of the Springs to dilate will widen the Stricture. *Hale's Vegetable Statics*, Vol. 2.

VOL. I.

If the Stone of the Bladder is too large to pass thro' the Duët of the Urethra, the only Remedy is Lithotomy. *Boerhaave* has the best Opinion of the greater Apparatus, as being most certain; the Event, however, is always uncertain, on account of many Accidents, which can neither be foreseen, prevented, nor remedy'd.

In Women the Stone is generally taken away by dilating the Urethra, and seldom by Cutting. See LITHOTOMIA.

I do not know why *Boerhaave* has omitted mentioning Honey as a Remedy for, or Preservative against, the Stone. As this is extremely saponaceous and detergent, it is, by these Qualities, well adapted to scour off the calculous Concretions adhering to the Tubes of the Kidneys. And it is possible, that, if the Blood, and consequently the Urine, could be for a long time much saturated with Honey, small Stones might be dissolv'd, and large ones diminish'd. But the smallest Portion of Honey affects some Constitutions in such a manner, as to render the taking of it as a Medicine, impossible; and few can endure large Quantities of it without falling into a violent *Diarrhæa* or *Cholera Morbus*.

As the Bladder is subject to many other Disorders besides the Stone, which appear with Symptoms not unlike it, I shall give the following Treatise from *Hoffman*, in which the Reader will find his Account.

The Bladder, as being a nervous and muscular Part of the Body, is very subject to Spasms; by which Word we understand an intense and preternatural Constriction of the Body of the Bladder, and also of the Sphincter; or a Stricture, Coarctation, and Crispation of the Fibres, to which Disorder many other morbid Affections owe their Original.

Those tormenting Pains which are excited by the long Continuance of a Stone in the Bladder, together with a perpetual Desire of making Water, and the very difficult and painful Evacuation of the Urine, are owing to nothing but Spasms. For a convulsive Stricture, which affects not only the Musculo-nervous Coat of the Bladder, but also its Sphincter, and the Urethra itself, in a violent manner, excites a Strangury, and so great a Straining in the Pubes, as if it were scarce possible to stop the Urine, which yet, as soon as it begins to drop, is quite repressed and retain'd. This Disorder is attended with a Pain throughout the whole Region of the Penis, but oftentimes only with a most acute Pain in the Glans, according to the Observations of *Hildanus* and *Baglivi*. This extraordinary Sensation of Pain, Itching, and continual Irritation; in the Glans and Extremity of the Penis, is to be accounted one of the Pathognomic Signs of the Stone, both in Boys and Men. But, besides this, there is also a frequent Desire of going to Stool, or a Tenesmus, because of the strict Connexion of the *Intestinum Rectum* with the Bladder, and the Communication of the Nerves. The Urine which comes off in this Dysury, is, for the most part, white and foul, with a mucous Sediment; for the Convulsion of the muscular Fibres, by a violent Stricture and Compression, squeezes out, from the interior mucous Coat of the Bladder, a great Quantity of viscid glutinous Lymph, which, mix'd with the Urine, supplies that mucous Sediment. Oftentimes also a thin, aqueous, and almost colourless Urine comes away from the Patient, while under this racking Pain, and these Spasms, which, by mutual Consent and Communication of Parts, penetrate to the very Ureters, and are the Cause of their transmitting nothing but a thin and aqueous Substance, convey'd from the Blood by the emulgent Vessels. Moreover the Patient, in making Water, often suffers very severe Pains, sets his Legs across, compresses his Hips, bends his Body forwards, and, with one Hand, sometimes with both, presses with all his Might upon his Belly near the Region of the Pubes; and this painful Evacuation of the Urine is attended with Trembling, and, as it were, convulsive Motions of the whole Body, as is well observ'd by *Vienssens* in his *Neurologia*; for the fine Nerves of the Bladder, being vellicated and convulsed in a violent manner, by means of the intercostal Nerves, communicate the same to the spinal Nerves, and so to all the other Parts. It is observ'd also, that, under a Strangury, and a vehement Dysury, the Belly is constipated, and the *Fæces*, together with the Flatulences, retain'd, which, when the Pains cease, readily resume their usual and natural Course.

It is certain also, from Observation, that all these recited Symptoms, and even worse, may be excited not only by a Stone in the Bladder, but by a Stagnation of the Blood within the Blood-vessels of that Part, the frequent Consequence of which is a violent Inflammation. For it is a vulgar Error to ascribe all these Symptoms to a Stone in the Bladder, or an Acrimony of Urine, since Observations and Dissections of dead Bodies abundantly shew, that the Diseased have not only been afflicted with the same Symptoms which proceed from a Stone in the Bladder, but have undergone worse Torments, tho' there has not been the least Sign of a Stone found in them after their Death. For, as when a Check is given to the Course of the Menes or Hemorrhoids, the Blood regurgitates upon the Vessels of the Stomach and Intestines; and, stagnating within their nervous and sensible Coats, by stretching and compressing them,

them, excites violent Gripings, Anxieties, Pains, Convulsions, and spasmodic Motions; so also, when thro' the Default or Retention of the Hæmorrhoidal Flux, or from any other Cause, the Blood is repelled in great Quantities upon the Body of the Bladder, and there stagnates, no wonder if, in such a sensible Part, it excites Spasms, and other consequent Symptoms.

Thus a Suppression of the Hæmorrhoidal Flux is sometimes follow'd by bloody Urine, which being stop'd, the Bladder is seized with a Pain, Convulsions, and Inflammation. Sometimes Women of a plethoric Habit of Body, when past their fiftieth Year, after a total Cessation of the Catamenia, have been taken with terrible Convulsions of this kind, which have ended in a fatal Inflammation. For those who die of Diseases of the Bladder, are destroy'd by an Inflammation and Sphacelus, which are owing to a stubborn and fix'd Stagnation of the Blood in its Vessels, whereby their small Ramifications are too much distended, and that in such a manner, that the Inflammation, for the most part, affects not only the Bladder, but the *Rectum*; the Truth of which the Hæmorrhoidal Vessels, being full of black Blood, with the Lividness of the Penis, and the Veins in the Neck of the Bladder being very much distended, and varicose with Blood, sufficiently prove.

There is but one principal Cause of this mortal Inflammation, and that is a strong Spasm of the Bladder, which the more violent it is, so much the more it increases the Stagnation and Detention of the Blood in the Vessels, and hinders its Resolution and Discussion; whence it passes at last into an Abscess and Ulcer, and so becomes a chronical Disease, or degenerates into a Sphacelus, which soon destroys the Patient. And, indeed, this violent Convulsion of the Bladder, which is increased by the present Inflammation, is the Cause of a Multitude of dreadful Symptoms with which an Inflammation is attended; among which, according to *Aetius* and *Oribasius*, are a continual Fever, great Heats, Pain, a burning Heat, and Tumor under the Perinaeum, and above the Pubes, an Emission of Urine by Drops, with great Difficulty, hard Strainings, and lamentable Cryings-out, a frequent Stimulation to evacuate by Stool, attended at last with Vomiting of Bile, a Pain of the Head, Thirst, Difficulty of breathing, Redness of the Face and Eyes, a Tongue black with parching Heat, obstinate want of Sleep, Delirium, Restlessness, Refrigeration of the extreme Parts, and at length Death. There is a Passage in *Hippoc. Lib. Prænotionum*, concerning the fatal Event of Diseases of the Bladder, which deserves to be mention'd here. “Hardnesses and Pains of the Bladder are dreadful and pernicious in the utmost Degree, especially such as attend a continual Fever; for the Pains themselves (these are the Effects of Convulsions) are sufficient to kill the Patient; and the Belly, at this time, makes no Excretions, but of a hard sort of Substance, and that forc'd. A Solution is attended with a Discharge of purulent Urine, depositing a white and thin Sediment. But if, after such an Evacuation, the Pain be not mitigated, nor the Bladder mollify'd, it is to be fear'd, that the Patient will die in the first Periods (*τρίτοντον*) of the Distemper.”

These Symptoms which attend an Inflammation of the Bladder, and discover themselves in various Parts of the Body, are, indeed, very much to be dreaded; and yet all of them, if well consider'd, can hardly be ascrib'd to any other Cause than a violent Spasm, which begins in the Bladder, as being the Part affected, and is thence communicated to the whole System of the Nerves; for when a most violent Stricture and Crispation affect the Fibres of the neighbouring Parts, which are the *Intestinum Rectum*, and the *Sphincter* of the *Anus*, there is either a continual Stimulation to Excretion, or so great a Constriction of the *Anus*, that neither Fæces nor Flatus can be transmitted, nor so much as a Clyster can gain Admission. And since a strong Spasm is well known to debilitate the Part it long affects, and leaves it at last in a State of Relaxation, the Consequence is a Falling-out of the *Anus*, especially in aged Persons and Infants. Whenever a severe Spasm of the Bladder extends itself to the superior Parts, and particularly the Intestines, it excites Rumbings and Gripes, and, when it is communicated to the Stomach, Loss of Appetite, ill Digestion, and Vomiting. *Celsus, Lib. 7. C. 27.* has a very remarkable Passage of the Content between the Bladder and the Stomach. “We know very well, says he, that an Ulcer in the Bladder often affects the Stomach, between which two Parts there is a kind of Sympathy. Hence it is, that the Food is not retain'd, or, if retain'd, is not concocted, nor the Body nourish'd.” This Convulsion also of the Bladder, which attends an Inflammation, by affecting the Muscles of the Diaphragm, with the Nerves and nervous Coats of the Lungs and Bronchia, causes a difficult and troublesome Respiration, with an Anxiety of the Præcordia; and being communicated to the Muscles of the Heart, and the musculo-nervous Coats of the Arteries, makes a hard, contracted, and quick Pulse, with a continual Fever, and an unquenchable Thirst, which is, in like manner, owing to a convulsive Stricture of the soft and glandulous Parts of the Tongue and Fauces. But the Danger is still greater, if it extends itself to the Membranes of the Brain, and the Origin of

the Nerves; for then a constant want of Sleep, Delirium, Convulsions, Refrigeration, and Horror of the extreme Parts, with an unequal and intermittent Pulse, are Signs of approaching Death.

Tho' the Symptoms which proceed from a Stagnation and Inflammation of the Blood, whether pure or impure, in the Bladder, are very much to be dreaded, and often mortal; yet those Disorders which arise from a salt, impure, and corrupted Serum, obstinately adhering to, and vellicating the Coats of the Bladder, are milder, and less dangerous. Of this Nature are those Pains which attend a Difficulty of Urine, and a Strangury. We often meet with Cases of this kind among the Observations of Physicians, particularly *Drawitz*, who deserves to be remember'd, and who, about an Age ago, wrote an entire Treatise, in the *German* Tongue, concerning the Scurvy, which is one of the best on the Subject. In this Book he makes several Observations, and describes Cases of Patients who complain'd of racking Pains in the passing off of their Urine, the Cause of which was no Defect, or Stone, in the Bladder, but only an impure scorbutic Humour. Among others, he relates a memorable Case of a Butcher, who had never labour'd under the Stone, and was on a sudden taken with an intolerable Pain in his Feet; the Disease, being remov'd from those Parts, was translated upon the Urethra, with an intense Heat, and Difficulty of Urine, which scarce came away by Drops. This Disorder yielded to Discutients, but return'd into the Feet, the Consequence of which was a Tumor in those Parts.

We have often observ'd, in aged Persons, Disorders of the Bladder, and especially a Difficulty of Urine, which have been contracted by a sedentary Life, or a scorbutic Dyscrasy of the Humours, which, in old Age, is almost perpetual; and nothing is more frequent, than, upon a Cessation of the rheumatic or gouty Pains, for the Patient to be afflicted with a Dysury, which, on the Return of those Pains, goes off spontaneously. It is also a usual Observation, that scorbutic Persons, affected with a chronical *Purpura*, or purple Eruptions, a Disorder very common in our Days, when, by a Cold, or some other Cause, as, for Instance, often repeated Bleeding, the Humour has been retracted inwards, or remains within, are seiz'd with a great Difficulty of Urine, an Anxiety about the Præcordia, a Restlessness, want of Sleep, and an inward burning Heat; all which Symptoms, upon the Expulsion of the *Purpura* to the Superficies of the Body, vanish and disappear.

There is yet another Cause of the Spasms and Pain of the Bladder, which is some Disorder in the Kidneys, whence, sometimes, a purulent and viscous Matter, at other times Stones and Gravel, are transmitted by the Ureters to the Bladder. In both Cases, unless the foreign Matter be timely expel'd, it is capable of exciting very dangerous Disorders, and particularly most violent Spasms. If the Matter be more tenacious and acrimonious than ordinary, it adheres to the Inside of the Bladder, and especially about its Neck, and excites a Strangury, Dysury, Tenesmus, and Inflammation; or secretly and slowly corrodes the Membranes of the Bladder, and so renders it exulcerated. If this Matter, by the Accession of other Causes, become transform'd, and pass into the Nature of a Stone; or a Stone, already made, descends from the Kidneys into the Bladder; it is continually irritating the same by its Roughness or Weight, and produces the same Disorders as before-mention'd; and, in the latter Case, the Bottom also, and the Sides of the Bladder, especially where the Stone is large, are exulcerated.

Sometimes the Neck of the Bladder is irritated, stretched, and convulsed, by other Causes besides those already mention'd; as, for Example, when a Gonorrhea, whether of the mild or malignant Sort, continues, for a long time together, in its proper Seat, which is in the two Glandular Prostate, which are contiguous to the Neck of the Bladder; for the Humour, in this Space of Time, being corrupted by the Venereal Impurity, becomes every Day more deprav'd, and generates Ulcers, sometimes but slight, sometimes of a more dangerous Nature, or excites Inflammations in the affected Part. And if the Cure of these Disorders happens to be ill perform'd, it is often observ'd, that the next adjacent Parts are infected with the Contagion. The Urine then comes off of a purplish Colour, and a Scabies of the Bladder, and even an Exulceration of that Part, especially about the Neck, frequently succeed. Hence it is that those who labour under a virulent Gonorrhea, often discharge a turbid Urine, which deposits a good deal of a viscid and sanious Sediment.

Among the Causes of this dangerous Spasm of the Bladder, may also be reckon'd, an Inflammation or Ulcer of the *Intestinum Rectum*, or of the Penis; an Abscess in any of the inner Parts of the Abdomen, which breaking, the Pus being discharg'd into the Cavity of the Abdomen, makes its Progress at last towards the Bladder; a Corruption of the Omentum; an Effusion of Blood, however caused, into the Abdomen; the Falling of the Water, in Dropsies, upon the Bladder; an Inflammation and Ulcer of the Uterus, especially its Neck; and other Disorders of the like kind, of all which you may meet with Instances enough in *Boerhaave* and others.

As to the external Causes of this convulsive Distemper of the Bladder, we may suppose them to be Contusions, and violent Blows about the *Pubes*, or *Perinæum*; an unskilful Section for the Stone, in which, thro' want of Dexterity in directing the Knife, or extracting the Stone, especially if it be larger and rougher than ordinary, the Cure of the Wound becomes difficult, and is attempted by improper Means; a too careless introducing of the Catheter, in order to search for the Stone, or in a Suppression of Urine, or for any other Reason, when the Sphincter of the Bladder happens to be under a close Constriction, or the Passage stop'd by a Tumor, Caruncle, Scirrhus, or any other Cause; the Section of a Fistula in Ano, where, for want of Caution, the Sphincter of the Anus, which is pretty closely connected with the Neck of the Bladder, happen'd to be incautiously too much wounded, or due Care was not taken of the Wound. In Women, a Cause may be hard Labour in Childbirth, in which the Bladder, and especially its Neck, are often compressed and affected in such a manner, as to give Rise to an Ulcer and Fistula in those Parts, according to *Mauriceau, Aph.* 285. And here the remarkable Malignity of Cantharides, with respect to the Bladder, deserves our Notice; for whether taken inwardly, or outwardly apply'd, they have been certainly known, from Observations, to excite Spasms, Inflammations, and Ulcers in that Part, of which there are many Examples. It appears also, from practical Observations, that drinking of cold Water, after Section for the Stone, excites violent Spasm, or gives Rise to a mortal Gangrene, or a fistulous Ulcer.

Having assign'd the Causes of this spasmodic Affection of the Bladder, we think ourselves oblig'd to account for a peculiar Phenomenon, which is, why those Symptoms, such as a Difficulty of Urine, attended with a Pain, and other concomitant Evils, should so miserably afflict the Patient only at Intervals, tho' the material Cause, which is the Stone, or a scorbutic Dyscrasy, be always present. The Reason seems to be this: All vehement Pains in a nervous sensible Part, if they continue long, induce and leave a Weakness and Relaxation, in which State the Pains are no longer felt; but then this very Weakness is the Cause of a new Collection and Stagnation of impure Humours supply'd from other Parts of the Body; whence there is always a Generation and Coacervation of fresh Matter, for rekindling and reviving the Paroxysm. For Debility, as *Celsus* says, is subject to all Diseases; and therefore it may be establish'd as an universal pathological Canon, That those Parts which are debilitated by the preceding Violence of a Distemper, are very easily susceptible of the morbid Humour, which, after a gradual Collection, either spontaneous, or excited by some slight Cause, makes a fresh Attack upon the Patient; and hence may be deduc'd the true Original of periodical Affections.

We have several times observ'd, that a Stone in the Bladder is only at certain Intervals the Cause of many Disorders, such as frequent and difficult Attempts to make Water, attended with a scalding Heat and Pain, Gripes of the Belly, Coldness of the extreme Parts, and a Decay of Strength, and that principally when the North Wind blows, or after flatulent Food, or Beer not well defecated, or from some unusual Commotion of the Mind, or too great a Refrigeration of the extreme Parts, or customary Bleeding too long omitted. The general Reason to be given for the Return of those Disorders on such Occasions, is, that all those things before-mention'd as Causes, are of such a Nature, and so qualified, as, partly by suppressing the salutary Excretions, partly by augmenting the Quantity of impure Humours, and propelling them towards the weaker Part, to give Occasion for the Return of the Disease, with its usual Train of Symptoms, upon the Patient. It is often observed also, that Distempers of the Bladder are attended with a flatulent Colic, especially when there is a hot and painful Discharge of the Urine; and that all Aliments which generate Inflammations, exasperate the Disorders of the Bladder, as, on the contrary, all Carminatives are beneficial.

Among Diseases of the Bladder, which are attended with Spasms, may well be reckon'd discharging of bloody Urine, which, however, does not all proceed from the Kidneys or emulgent Vessels, as Physicians usually imagine, but often flows proximately and immediately from the Blood-vessels of the Bladder, and especially the ruptur'd Branches of the external hæmorrhoidal Vein. This Hæmorrhage, attending the Urine, may be known to proceed from the Vessels of the Bladder, by a Difficulty of Urine, a burning Heat, and Tenesmus affecting the *Anus*, convulsive Motions about the *Glans*, a pungent Pain from the *Glans* to the *Perinæum*, a rigid Tension of the *Penis*, with Rumblings and Flatulencies in the Abdomen, Loss of Appetite, and frequent Eructations; as also, if the bloody Urine, and concomitant Symptoms, after bleeding in the Foot, and Application of Leeches to the Anus, are remitted and cease. And, indeed, tho' such bloody Urine does not so very frequently proceed immediately from the Bladder, yet it has been sometimes observed, and particularly by *Horchstetter, Decur.* 1. *Schol. in Cas.* 2. Sometimes pure Blood comes off

with the Urine, or, instead thereof, Urine of a brown Colour, like Coffee; as we observed in a Man eighty Years of Age, whenever he rode on Horseback: The Urine, when cold, deposited a dense and red Sediment.

Dreadful Symptoms also usually happen from concremented Blood within the Bladder, as *Lommius* observes, such as frequent Faintings, a Difficulty of Breathing, a low, small, and quick Pulse, a great Nausea, Anxiety of Spirit, and a cold Sweat, with an universal Imbecillity, Paleness of Countenance, and Refrigeration of the extreme Parts; all which Symptoms are to be ascribed to a violent convulsive Stricture, communicated to the whole nervous System. A Condensation of Blood in the Bladder is also the Cause of racking Pains, with a vehement Heat at the Bottom of the *Pubes*, and about the *Penis*, which have been observed to cease after the Patient had voided large, oblong, grumous Concretions of Blood in his Urine. As to the Cure of bloody Urine, which proceeds from an affected Bladder, *Lommius* rightly judges, that it is more difficult than when it descends from the superior Parts.

We must not omit to observe, that a Spasm of the Bladder, which excites a Strangury and Dysury, especially in old, scorbutic, and cacochymical Constitutions, may proceed also from a very salt Urine, impregnated with acrid, tartarous, salinofulphureous, and muddy excrementitious Parts: For the Urine is sometimes found so salt as to corrode the Tongue, and, as it disils from the Urethra, to excoriate the neighbouring Parts; and therefore, if it should happen to stagnate for a considerable Time in the Bladder, will, by vellicating the Fibres of the Nerves, close up the Sphincter, and straiten the Urethra, and, by tearing and corroding the Membrane, excite most intolerable Pains. If, after a painful Discharge of the Urine, there appear in it branny little Masses, with Plenty of slender Filaments, which subside, the Antients call this Affection a *Scabies* of the Bladder; because it indicates a Corrosion of the mucous and villous Membrane thereof.

We said before, that a Stone, contain'd in the Bladder, is often the Occasion of strong and painful Convulsions, attended with a Difficulty of Urine, which molest the Patient at Intervals; but we are also to take Notice, that Spasms of the Bladder, when proceeding from other Causes, frequently lay the first Foundation for the Generation and Concretion of the Stone in the Bladder. This principally happens in old Men, who are of a plethoric Constitution, addicted to a sedentary Life, and, on account of a weak Perspiration, commonly void a high-colour'd Urine, saturated with tartarous muddy Scoria: For the Spasm excites a Dysury; and the urinous Liquor, being retain'd a little longer than ordinary, deposits a tenacious glutinous Matter, which, being involved in tartarous Salts, may be supposed the first Principles of a calculus Concretion hereafter to be form'd; unless the Matter be evacuated by some convenient Medicine, and a free Passage made for the Urine by removing the Spasm.

Of all Diseases of the Bladder, a violent Stricture is most dangerous, and often mortal, especially when it is attended with a vehement Pain, an acute Fever, with an Hardness of the Bladder appearing near the *Pubes*, Costiveness, and a Suppression of Urine, according to *Hippocrates* in his *Prognostics*, and his *Coacæ Prænotiones*, where he says, "That a Hardness and Pain in the Bladder are very bad Symptoms upon all Accounts, but worst when attended with a continual Fever, for the Pain alone is sufficient to kill the Patient. There is but little Evacuation, by Stool, under this Distemper."

If the Pain and Hardness are but moderate, and without an acute Fever, the Inflammation is of a mild Nature. The Event, in such Cases, is various; sometimes the Disease is critically resolved, by the cutaneous Eruption of an Erysipelas; sometimes it tends to a Suppuration, in which Case there comes away purulent Urine, which deposits a thin white Sediment. If there be a plentiful Discharge of the Urine with Pain, the Tumor subsides, the Bladder is mollify'd, the Fever mitigated, and a free Passage made for the Excrements. The worst Event is, when the Distemper degenerates into a mortal Sphacelus. *Hoffman, Medic. Rat. System.*

The CURE.

Having consider'd the many severe and dangerous Disorders proceeding from painful Spasms of the Bladder, Urethra, and adjacent nervous Parts, with respect to the different Nature of their Causes, we now come briefly to propose and explain the most convenient Methods and Remedies for the Relief of the Patient. If we find the Disease approaching, or at least are apprehensive of its coming, and that it proceeds from a Redundance of Blood, especially in old Persons of a vigorous Constitution, who have for a long time pass'd their Lives without sufficient Motion of Body; the greatest Relief, in such a Case, is to be expected from speedy and plentiful Bleeding, which becomes the more necessary, if the Cause is suspected to be a Retention of the Menstrues, or a Stoppage of the Hæmorrhoidal Flux,

Flux, or an Omission of long accustom'd Phlebotomy, or Scarification. This is agreeable to the Advice of *Hippocrates*, *Aph. 36. Lib. 6.* where, under a Difficulty of Urine, he orders the inner Veins to be open'd.

In a Redundance of impure Serum, impregnated with scorbutic, acrimonious, and saline Particles, which, by its Desfluxion, and Settlement about the Bladder, and the Parts included within the Pelvis, furnishes Matter for this Disorder; or if it be owing to the scorbutic Purples, a Distemper grown common in our Times, we must use our best Endeavours, that the Mass of Blood and Humours, which is vitiated by the Mixture of those heterogeneous and impure Particles, may be depurated, and the Redundance of Serum evacuated by the proper Emunctories. For this Purpose temperate Diluents, in sufficient Quantities, and for a convenient Length of Time, are to be used: Of this Nature are the temperate kinds of Mineral Waters, which consist of the purest and lightest Liquid, impregnated with a slightly alkaline Salt; such, above all others, are the *Selteran* and *Spaw* Waters; for they are very agreeable, and extremely beneficial, in all the Disorders and Defects of the Breast, Kidneys, and Bladder, which Parts, in particular, they relieve by a sort of specific Virtue. In the scorbutic Purples they exert their Virtues much more to Advantage, when mix'd with Milk, especially Asses Milk.

As a Regimen of Diet is of the greatest Importance, both in preventing and curing a Disease, so that they who live freely, without regarding the Laws of Medicine, or the Rules of Sobriety, can never be relieved from such afflicting Distempers; but, at most, only procure to themselves some Intervals of Ease; for this Reason, in so chronical a Disorder, where the Nerves, and most sensible Parts, are affected, the least Error in Diet must, of necessity, have a bad Influence upon the nervous Parts. The Patients, therefore, are to be strictly forbidden all salt, acrimonious, and sour Meats, all Vegetables which breed Inflammations, or are astringent; and they must also abstain from all Malt-liquors, and acid and austere Wines: But sweet Wines, and particularly the *Hungarian*, are not only harmless, but very beneficial. Here a Passage of *Aetius*, *Tetrab. 3. Serm. 3. Cap. 22.* concerning a Scabies of the Bladder, deserves to be quoted: "The Patient, says he, must abstain from all " Things of a biting Quality, and such as render the Humours " salt and acrimonious; but give him sweet Wines, and " Milk, with Broths made of Hens, or the Flesh of Kids or " Lambs." And tho' Motion and Exercise of the Body have a very good Effect in preventing Distempers of this Kind, by giving a Check to the Redundance of Blood, and maintaining a due Circulation of the Humours through the Vessels; yet, if the nervous Parts at the Bottom of the Belly are affected with Pains and Convulsions, Rest is better for the Patient than Motion, which, in such a Circumstance, would be very prejudicial; especially such kinds of Motion as drive the Blood more upon the inferior Parts, as a great Elevation of the Voice, long and earnest Speaking, Agitations of the upper Parts, Gestation, and Lifting of Burdens.

While the Patient is under the convulsive Fit, attended with racking Pains, and a Difficulty of Urine, I have learnt by frequent Experience, that there are no better Remedies than oily emollient Clysters, a Bath, or a Semicupium, which is confirm'd by the Observations of Physicians, every-where to be met with; and we have an elegant Observation of *Dravotz*, in his Book of the *Scorbut*, to the same Purpose. A Vapour-bath of emollient and anodyne Flowers is also beneficial in the Time of the Paroxysm; such are the Flowers of common Chamomile, Melilot, the Elder-tree, Mallows, Mullein, and Millefoil, boiled in Milk; for, by their lenient and demulcent Virtues, they are of excellent Service in composing and mitigating the Pains and Convulsions. Internally may be given our *mineral anodyne Liquor*, either alone, or mix'd with Carminatives; also antispasmodic Powders, as the Marquis's Powder, or purified Nitre, with an Addition of a little Saffron and Castor, taken in an Emulsion of the Four greater cold Seeds. These Remedies are preferable to all others, and may be used even under a Fever, and when an Inflammation is threaten'd, if the Proportion of Nitre be augmented.

When the Disease of the Bladder proceeds from a Translocation of a rheumatic Desfluxion from the external Parts upon the Viscera, Fontanels, cut in the Arms, have been of no small Service. Also a demulcent and gently diuretic Decoction of the Roots of Scorzonera, Sarsaparilla, China, the Shavings of Hartshorn, the Roots of Liquorice, Couch-grass, Succory, and Fennel seeds; or our *mineral anodyne Liquor*, mix'd with the Bezoardic Spirit of Bussius, are Remedies which never fail of having a good Effect.

If bloody Urine, having its Origin in the Bladder, be attended with a convulsive Affection of the same Part, or an Exulceration supervene, I have frequently found the good Effects of an Application of the vulnerary Water call'd *L'eau d'Archufade*, (see *AQUA*) in answering the Intention of dissolving and corroborating. I also use repeated Applications of Bags

of Mint, Baum, Myrtle-leaves, Bay-leaves, Roses, with the Flowers of common and *Roman* Chamomile, all boiled in Red-wine, to the Region of the Bladder: And to prevent a Cohesion of any grumous Blood, that may happen to be retain'd in the Bladder, with a tartarous Mucus adhering to the Part, which may produce a Stone, internal, absterfve, and gentle vulnerary Medicines may very properly be used. Some of the best of these are Golden-rod, Ladies-mantle, the Tops of St. John's-wort, and Millefoil, the Roots of Avena, Marshmallows, and Liquorice, Figs, and Spleenwort, in the Form of an Infusion or Decoction, well sweeten'd with *Prussian* Honey, or *Fernelius's* Syrup of Marshmallows. The Decoction of *Forestus*, and Sperma Ceti, are also very good Medicines for dissolving grumous Blood retain'd in the Bladder.

When the Inflammation is succeeded by an Abscess, which is known by the Exacerbation of the Symptoms, and a Sense of Weight in the Region of the *Perinaem* and *Pubes*, it is necessary, that it should be timely open'd, and the Pus discharged from the Bladder; for the longer it continues, the more acrimonious it grows, and corrodes the adjacent Parts, corrupting them in like manner, and introducing *Fistulas*, and other very bad Symptoms. To prevent such mischievous Effects, Injections of warm Milk, boil'd with emollient Species, are to be used: If these are of little or no Efficacy, our last Recourse must be to the Surgeon, who is to make an Incision with the Knife in the same Place of the *Perinaem*, as, in cutting for the Stone, with what they call the *greater Apparatus*. Two Examples of this Method in *Bonetus*, *Sepulchr. Lib. 3.* taken out of *Rolanius*, are worth our Notice. In Women the Case is otherwise; for they stand in no need of this kind of Remedy, because in them the Orifice of the Bladder is larger, and the Access to it more open. The Ulcer being open'd, and well cleansed, is to be treated with the same Remedies as were directed in the preceding Paragraph.

PRACTICAL CAUTIONS.

I.

When a Redundance of Blood requires Evacuation, the best Method is to open a Vein in the upper Parts, by way of Revulsion; and the next Day, or the Day after, to cut the Veins in the Anus, if they are swell'd and prominent, for the sake of Derivation; or, if this cannot conveniently be done, a Vein may be open'd in the Ankle or Ham. If the Habit of Body be lax, and full of Blood and Juices, and especially for the Female Sex, Cupping-glasses, applied to the upper and lower Parts, may be very beneficial, by attracting the Blood and Humours towards the Superficies.

II.

You are to take Notice, by way of Caution, that tho' repeated Bleeding, as before advis'd, be very serviceable in preventing or removing an Inflammation, or hindering its Increase; yet where the Blood and Spirits are deficient, and in case of an Exulceration, Phlebotomy is rather hurtful than beneficial, by exhausting the Strength and Spirits of the Patient, which are absolutely necessary for expelling and subduing the Disease.

III.

In all Pains, and convulsive Disorders, of the Bladder, from whatever Cause they proceed, strong Cathartics are by no means convenient, neither in the Beginning nor Progress of the Distemper; for it is to be fear'd, lest the Humours, being by their means put in Agitation, should be impel'd, and bend their Course towards the affected Parts. But under a Remission of the Pain and Spasms, and in the Decline of the Disorder, it is very useful, and even necessary, now-and-then, to give a Purge, in order to cleanse and free the Intestines from those stercoraceous Recrements and Sordes, of which there is generally a Collection and Coacervation in those Parts, during the Time in which the Pain and Convulsions molest the Patient: But this Intention is to be answered by the milder Sort of Purges, such as those prepared of Manna, and Rhubarb, and solutive Syrup of Roses, drank in Whey, or Asses Milk.

IV.

In order to mitigate the convulsive Paroxysm, besides external Remedies, as Liniments and Fomentations, Clysters composed of Lenients and Emollients are to be injected, which, by their mild and comfortable Warmth and Influence in relaxing the rigid and convulsed Fibres of the adjacent Parts, may probably cause a Remission of the Pain, and afford considerable Relief to the Patient; but these are to be administer'd in small Quantities, for fear of compressing the Sides of the Bladder.

V.

If the Bladder, and Parts connected with it, be affected with a considerable Exulceration, which is indicated by a copious Sediment

Sediment of viscid Matter, and a slow Fever consuming the Strength and Flesh; the Patient must abstain from too free an internal Use of the *Caroline Waters*; for the plentiful Drinking of them, as I have learn'd by Experience, is very prejudicial, because both the Corruption and Fever are increased by the Stagnation of these Waters.

VI.

A seasonable Use may be made of anodyne Injections, as well for correcting the Acrimony of the Humours, as for blunting the Sense of the intolerable Pains. These may be prepared of four Whites of Eggs, beaten to a Water, with an Addition of two Ounces of Woman's Milk, and a Dram of the freshest Butter; or an artificial Emulsion may be made of the Seeds of Gourds, and of white Poppy, the Water of Elder-flowers, Rose-water, and black Cherry-water, for the same Purpose.

VII.

All acrid Diuretics must be carefully avoided in this convulsive Affection; for, in an Exulceration of the urinary Passages, the Pain and spasmodic Symptoms must, of Necessity, be very much exasperated by the Acrimony of such Medicines.

VIII.

When the Patient is under extreme Pains, which may be of dangerous Consequence, Anodynes of the greatest Efficacy may be useful, for preventing too great a Diminution of the Strength, with an Increase of the Fever and Dysury, or Madness; and I have known half a Dram of Troches of Alkekengi given as a Dose, with very good Success: But we must utterly avoid such Medicines when there is a Decay of Strength, either thro' Age, or some Passion of the Mind, particularly Sorrow. *Hoffman Med. Rational. Syst.*

Mr. Sharp gives us the following Remarks relative to the Stone, which, for the farther Illustration of this important Subject, I shall insert.

Hitherto there has never been given any satisfactory Account of the Causes of this concreting Disposition in the Fluids; and tho' there may be some Propriety in considering the Sand of Urine in the same Light as the Tartar of Wine, from their Similitude in several Experiments, yet we cannot infer from thence, what does immediately produce it; at least it is not, with any Certainty, to be imputed to a particular Diet or Climate, which, however, are the Causes commonly assigned; since we see, that in all Countries, and amongst all Ranks of People, as much amongst the Sober as the Luxurious, the Stone is a frequent Distemper; and tho' the great Numbers cut at the Hospitals of *Paris*, where the Water of the *Seine* is so remarkable for its Quantity of Stone, seems to favour the Opinion of its being generated by particular Fluids received into the Blood, yet, I believe, upon Inquiry, this famous Instance will not appear conclusive, since most of those Patients come from the Provinces, or distant Villages, where that River does not pass; and as to the Inhabitants of *Paris* itself, by what I was able to learn of the Surgeons there, the Number of those afflicted with the Stone amongst them is pretty nearly in the same Proportion as in *London*. From which Considerations, and the Circumstance of so many more Children having the Stone than Men, one would be inclined to think the Disposition is much oftener born with us, than acquired by any external Means.

It is certain, the Urine generally abounds with Matter proper to compose a Stone; and, perhaps, if it could grow cold in the Bladder, it would always deposit the Matter there, as it does on the Sides of the Chamber-pot; tho' the Coats of the Bladder, being cover'd with a Mucilage, make them more unfit than the Sides of the Pot to attract the stony Particles; but we see, when once a hard Body is insinuated into the Bladder, it seldom fails to become the Nucleus of a Stone, whether it be a large Piece of Gravel, a Needle, a Bullet, or any other firm extraneous Substance.

From the monstrous Increase of some Stones in a small time, and the Cessation of Growth for many Years of others, we may be persuaded, that the Constitution varies exceedingly at different times, with regard to these stony Separations; and, from the Appearances of most Stones when artfully saw'd through, we may gather, that this Variation of Constitution does not shew itself only in the Quantity of Gravel added to the Stone, but the Quality of it also; so that a red uniform Stone, of an Inch Diameter, may perhaps, at half that Size, have been a smooth white one, at a Quarter, a brown Mulberry one, and so on at different times, altering in its Species. Hence (from the Apposition of different-colour'd Gravel) arises for the most part the laminated Appearance of a Stone, tho' sometimes the Laminæ are very nearly of the same Colour and Composition; and, in this Case, their Formation seems to be owing to the want of Accretion in the Stone for a certain time; during which, its Surface, by rubbing against the Coats of the Bladder, and its Attrition, from the Stream of

Urine, becomes smooth and compact; so that when more fresh loose Gravel adheres to it, its different Density in that Part will necessarily make the Streaks we see in a Section of the Stone, which are only the outside Surfaces of each Lamina.

That the ceasing to grow gives them this laminated Form, and not any particular Disposition in Sand to shoot into such a Shape, is probable from the Examination of some other Stones, in which a great Quantity of Gravel is first collected without any Nucleus, into a spongy uniform Mass, and after that is cover'd with several Laminæ.

'Tis no Wonder that Stones are so generally form'd in the Kidneys, since the Disposition of the Urine will naturally shew itself as soon as it is separated into the Pelvis; that is, the stony Particles, having as strong an Endeavour to unite with one another in the Kidneys as the Bladder, will consequently, from meeting first there, generally produce Gravel and Stone in that Part.

Small Stones and Gravel are frequently voided without Pain, but sometimes they collect, and become very large in the Kidneys; in which Case, a Fit of the Stone in that Part is the Cure, from the Inflammation and Pain occasioning convulsive Twitches, which at last expel them. But in this Disease the Patient is very much reliev'd by several kinds of Remedies, such as the Mucilaginous, the Saponaceous, &c. some of which lubricate, and others both lubricate and stimulate. The Sand, in passing through the Ureters, is very much forwarded by the Force of the Urine, which is so considerable, that I have seen a Stone which was obstructed in the Ureter in its first Formation, perforated quite through its whole Length, and form a large Chanel for the Stream of Urine. The Ureters being very narrow, as they run over the Psoas Muscle, and also at their Entrance into the Bladder, make the Movement of the Stone very painful and difficult in those Parts: but there is seldom so much Trouble after the first Fit; for, when once they have been dilated, they generally continue so: I have often seen them as big as a Man's Finger, but they have been found much larger.

The Symptoms of Stones in the Bladder are by no means infallible, since a Stone in the Ureter or Kidneys, or an Inflammation of the Bladder from any other Cause, will sometimes produce the same Effects; but if the Patient cannot urinate, except in a certain Posture, 'tis almost a sure Sign the Orifice is obstructed by a Stone; if he finds Ease by pressing against the Perinæum with his Fingers, or sitting with that Part upon a hard Body, there is little Doubt to be made, that the Ease is procur'd by taking off the Weight of the Stone; or lastly, if with most of these Complaints he thinks he can feel it roll in his Bladder, it is hardly possible to be mistaken: However, the only sure Judgment to be form'd is from Searching.

That we should not readily distinguish the Complaints of the Stone from many other Affections of the Bladder, is not very surprising, when we reflect, that a Fit of the Stone is nothing but an Inflammation of its Coats, which, tho' it be excited by the Stone, requires a Disposition in the Blood to produce it; for, if the Complaints in a Fit were owing to the immediate Irritation of the bladder, it should follow, that the Stone being always the same, the Fit would be continual; but, besides that all Patients have considerable Intervals of Ease, (often of many Months) except in those Cases where the Stone is either very large, or pointed, there are Instances of some few happy Constitutions which have no Pain at all, even after having for a certain time suffer'd very much.

To prevent the Violence and frequent Returns of the Fits of the Stone, Bleeding, and gentle Purgings with Manna, are beneficial; abstaining also from Malt Liquors, and Excess of Eating and Drinking, is very serviceable; but a Milk-diet and Honey are the greatest Preventatives, not only of Inflammation, but perhaps sometimes, too, of the farther Accretion of the Stone.

From considering the Disorders of the Stone in this Light, and the frequent Intervals of Ease which happen without the Assistance of Medicine, we cannot wonder, that so many Patients have believ'd the Stone dissolv'd, when they have been under any particular Regimen; and that in all Ages there have been many People deceiv'd for a Length of Time, by a suppos'd Dissolvent, tho' hitherto no safe one has been discover'd. *Sharp.*

Many Authors have pleased themselves with comparing the Animal Calculus with Tartar, and in finding out some Resemblance betwixt them. But I know no two Substances in Nature which can differ more widely than these two, both with respect to their Generation and Analysis. The only Circumstances wherein they agree, are their generating alike large Quantities of elastic Air, and their containing some Earth, tho' Tartar contains but a very little. As to their Generation, Tartar is the Offspring of Fermentation; whereas no such thing can happen in the Animal Fluids. And, when

ever compares the Analysis of Tartar (see TARTARUS) with the following Analysis of a *Calculus*, will readily perceive how different they are in their Composition. Tartar is an Acid; but no Portion of an Acid can by any means be discover'd in a Calculus.

Dr. *Stare* says, We distilled one Ounce of human Calculus that was recently cut out of a Body, which afforded about two Drams of a brownish Spirit, nearer to that of Hartshorn, than Urine. We put the Caput Mortuum upon the Capel, and reduc'd it to near a Dram; the rest burning and smoaking away. Another time, we distilled in a naked Fire a Stone that weigh'd two Ounces; the Vapour came over upon a good Streß of Fire, and settled in the Form of Salt without any Liquor, of which we preserv'd only a Dram; it appear'd very brown, and tasted bitter, as the fetid Oil of Hartshorn, and other empyreumatical Oils, do. We examin'd by boiling and evaporating Water from the Caput Mortuum, whether it held any fix'd Salt, but found none. The Caput Mortuum weigh'd one Ounce, and six Drams; so that it lost only two Drams in the Distillation, that is, only two Drams came over the Helm. We proceeded farther, and placed the Caput Mortuum upon a Test in an open Fire, where it burnt away to two Drams forty-four Grains. This we also boiled in Water to see what Salt it held; but it scarce afforded a Taste of Salt, hardly surmounting that we usually find in the like Quantity of common Water. In this fiery Trial, an Ounce and three Drams of the two Ounces evaporated in the open Fire, (a material Circumstance, which Chymists rarely inquire after) of which we have no Account. *Phil. Trans. Abr. Vol. 3.* Dr. *Hale* says, That the greatest Part of this is raised into permanently elastic Air.

As to the Production of Stones in the Body, if we reflect upon what is said under the Article ARTHRITIS, with respect to the Generation of the Gouty Matter, and consider, at the same time, the great Affinity there is betwixt the Gout and Stone, and that either of these frequently is transmuted into the other, we may perhaps have Reason to believe, that the Causes of both are a Defect in the Solution of the earthy Particles of our Aliment by the Powers of Digestion; and if it happens, that the Sedentary, Luxurious, and Idle, are more subject to the Stone, than the Active, Temperate, and Laborious, it will be a farther Confirmation of its being generated in this manner. That Children also, who use but little Exercise, and whose Stomachs are lax and weak, are often afflicted with the Stone, seems to favour this Opinion.

Upon this Occasion I cannot omit a beautiful Observation of *Boerhaave*, who, speaking of Menstruums, says thus: Tho' earthy Bodies, when corroded by Acids, may be dissolv'd in Water, Alkalies, when intimately united with Earth, cannot be afterwards dissolv'd with Water, as plainly appears in Glafs, which consists of an Alkali, and an Earth, intimately united, and is less soluble in Water, the closer the Union: So great is the Difference between the Solution of Earth by one kind of Salt and another. Alkalies, we see, subtilely dissolve Earth into a fix'd, transparent, hard Body, which resists the dissolving Power of Water, more than any other Body; but it appears stranger still, that the subtile, volatile, alkaline Salts of Animals, intimately united with Earth, should form a Mass undissolvable in boiling Water; for the Stones generated in Animals I take to consist of these two Principles and Oil; and in whatever Part of the Body such Stones are generated, they commonly produce terrible Effects; as having a Power of attracting and joining to themselves a similar Matter, from such Animal Juices as approach nearest to Putrefaction, as the Bile and Urine; which containing Salts nearly alkaline, these Salts unite to themselves the fine Earth, wore off from the Parts of the Body; and thus lay the Foundation of new Stones, or enlarge the old ones: and hence the daily Increase of this monstrous Production, which brings on terrible Disorders.

Hence we may perhaps deduce the Reason, why the Author of Nature has made nearly all the Aliments of Animals incline to Acidity; for the acid Salts, on this Account, predominating in the Stomach, dispose such Aliments to dissolve more easily, whose firmer Parts cohere principally by means of Earth; whence they would otherwise with much more Difficulty be dissolv'd into fluid Chyle. But when afterwards a Matter is to be form'd of this Chyle, fit to bind the Solids together, the Tendency to Acidity, which was necessary in the Chyle, is changed, and an alkaline Tendency of the Salts introduced; which, by binding the earthy Particles, forms a Structure indissoluble in Water, and fit to resist the Action of the Fluid. At least we know, that Bones remain solid and firm, if steep'd in Alkalies; but grow soft and flexible, if detain'd in Acids; as the ingenious Mr. *Ruysh* has often assur'd me, he found in his Anatomical Experiments. And doubtless, when the Power of changing Acescents into Alkalies is wanting in the Body, the Bones, Cartilages, Teeth, and Ligaments, become soft, weak, loose, and flexible, as we daily see in the Rickets. *Boerhaave's Chymistry.*

It would be inexcusable, if I was to omit taking Notice of Mrs. *Stevens's* Medicine for the Stone, as it was thought of Importance enough to merit the Consideration of the Legislature. I shall therefore give it in her own Words, as publish'd in the *Gazette*.

Mrs. STEPHENS's Medicine for the STONE.

It consists of a Powder, a Decoction, and Pills.

The POWDER is thus prepar'd.

Take Hens Egg-shells well drain'd from the Whites, dry and clean; crush them small with the Hand, and fill a Crucible of the twelfth Size (which contains nearly three Pints) with them lightly; place it in the Fire, and cover it with a Tile; then heap Coals over it, that it may be in the midst of a very strong clear Fire, till the Egg-shells be calcin'd to a greyish White, and acquire an acrid, salt Taste: this will take up eight Hours at least. After they are thus calcin'd, put them into a dry clean earthen Pan, which must not be above three Parts full, that there may be room for the Swelling of the Egg-shells in slaking. Let the Pan stand uncover'd in a dry Room for two Months, and no longer. In this time the Egg-shells will become of a milder Taste, and that Part which is sufficiently calcin'd will fall into a Powder of such a Fineness, as to pass thro' a common Hair-sieve; which is to be done accordingly.

In like manner:

Take Garden-snails with their Shells, clean'd from the Dirt; fill a Crucible of the same Size with them whole; cover it, and place it in a Fire as before, till the Snails have done smoking, which will be in about an Hour, taking care that they do not continue in the Fire after that. They are then to be taken out of the Crucible, and immediately rubb'd in a Mortar to a fine Powder, which ought to be of a very dark-grey Colour.

Note, If Pit-coal be made use of, it will be proper, in order that the Fire may the sooner burn clear on the Top, that large Cinders, and not fresh Coals, be plac'd on the Tiles which cover the Crucibles.

These Powders being thus prepar'd, take the Egg-shell Powder of six Crucibles, and the Snail Powder of one; mix them together, rub them in a Mortar, and pass them thro' a Cypress-sieve. This Mixture is immediately to be put up into Bottles, which must be close stop'd, and kept in a dry Place for Use. I have generally added a small Quantity of Swines-creffes burnt to a Blackness, and rubbed fine, but this was only with a View to disguise it.

The Egg-shells may be prepar'd at any time of the Year; but it is best to do them in Summer. The Snails ought only to be prepar'd in *May, June, July, and August*; and I esteem those best that are done in the first of these Months.

The DECOCTION is thus prepar'd.

Take four Ounces and a half of the best Alicant Soap, beat it in a Mortar, with a large Spoonful of Swines Creffes burnt to a Blackness, and as much Honey as will make the Whole of the Consistence of Paste; let this be form'd into a Ball. Take this Ball, and green Chamomile, or Chamomile-flowers, sweet Fennel, Parsley and Burdock-leaves, of each one Ounce; when there are not Greens, take the same Quantities of Roots; cut the Herbs or Roots, slice the Ball, and boil them in two Quarts of soft Water half an Hour; then strain it off, and sweeten it with Honey.

The PILLS are thus prepar'd.

Take equal Quantities, by Measure, of Snails calcin'd as before; of wild Carrot-seeds, Burdock-seeds, Ashen-keys, Hips and Haws, all burnt to a Blackness, or, which is the same thing, till they have done smoking; mix them together, rub them in a Mortar, and pass them thro' a Cypress-sieve; then take a large Spoonful of this Mixture, and four Ounces of the best Alicant Soap, and beat them in a Mortar, with as much Honey as will make the Whole of a proper Consistence for Pills, sixty of which are to be made of every Ounce of the Composition. When there is a Stone in the Bladder or Kidneys, the Powder is to be taken three times a Day, *viz.* in a Morning after Breakfast, in the Afternoon about five or six, and at going to Bed. The Dose is a Dram Avoirdupois, or 56 Grains, which is to be mix'd in a large Tea-cup full of White-wine, Cyder, or small Punch; and half a Pint of the

the Decoction is to be drank, either cold or Milk-warm; after every Dose.

These Medicines do frequently cause much Pain at first, in which Case it is proper to give an Opiate; and repeat it as often as there is Occasion.

If the Person be costive during the Use of them, let him take as much lenitive Electuary, or other laxative Medicine; as may be sufficient to remove that Complaint; but not more; for it must be a principal Care at all times to prevent a Looseness, which would carry off the Medicines; and if this does happen, it will be proper to increase the Quantity of the Powder, which is astringent, or lessen that of the Decoction, which is laxative, or take some other suitable Means by the Advice of Physicians.

During the Use of these Medicines, the Person ought to abstain from salt Meats, Red-wines, and Milk, drink few Liquids, and use little Exercise, that so the Urine may be the more strongly impregnated with the Medicines, and the longer retain'd in the Bladder.

If the Stomach will not bear the Decoction, a sixth Part of the Ball made into Pills must be taken after every Dose of the Powder.

Where the Person is aged, of a weak Constitution, or much reduc'd by Loss of Appetite, or Pain, the Powder must have a greater Proportion of the calcin'd Snails than according to the foregoing Direction; and this Proportion may be increased suitably to the Nature of the Case, till there be equal Parts of the two Ingredients. The Quantity also of both Powder and Decoction may be lessen'd for the same Reasons. But as soon as the Person can bear it, he should take them in the above-mention'd Proportions and Quantities.

Instead of the Herbs and Roots above-mention'd, I have sometimes used others, as Mallows, Marshmallows, Yarrow both red and white, Dandelion, Water-cressies, and Horse-radish Root; but do not know of any material Difference.

This is my Manner of giving the Powder and Decoction. As to the Pills; their chief Use is in Fits of the Gravel, attended with Pain in the Back, and Vomiting, and in Suppression of Urine, from a Stoppage in the Ureters. In these Cases, the Person is to take five Pills every Hour, Day and Night, when awake, till the Complaints be remov'd. They will also prevent the Formation of Gravel, and Gravel-stones, in Constitutions subject to breed them, if ten or fifteen be taken every Day. Thus far Mrs. Stephens.

In order to form a just Judgment of these Medicines, it is necessary to know, that Shells by Calcination are converted into a Lime; and that a Lixivium of Lime is a principal Ingredient in Alicant Soap.

I find these Medicines are at present in much Disrepute. But as I am to give my Sentiments upon them undisguised, and without being biased by any Authority whatever, I shall give my Reasons for believing them of some Efficacy, tho' I have never seen any remarkably good Effects from them.

My first Reason is, That the principal Ingredients in these Medicines are recommended for the Stone, by Authors of the first Reputation. Thus *Hoffman* speaks of Egg-shells and Mother of Pearl; and *Boerhaave* prescribes Soap, as we have seen above.

My second Reason is, That they have indisputably been of great Relief to many Persons afflicted, before taking them, with the most exquisite Tortures from the Stone. I say, indisputably; because, to doubt it, would be paying a very bad Compliment to the Understanding and Honour of many Gentlemen of known Integrity, who were appointed by Parliament to inspect into, and who afterwards gave their Opinion in Favour of, these Medicines.

My third Reason is, That I have known in several Instances, great Effects produc'd by a Medicine, which seems to be nearly of the same Nature with those of Mrs. Stephens, as it consists of Lime made of Oyster-shells. The History of it, so far as I am acquainted with it, is thus. Mr. *Schwemberg*, a German Gentleman, extremely well versed in the most abstruse Operations of Chymistry, has a Method of melting, by the Help of a Flux, calcin'd Oyster-shells, so as to make them run like Wax, and to admit of being cast into Cakes, which dissolve *per Deliquium* into a fluid; this, when filtr'd, is limpid as Rock-water, and extremely alkaline, tho' not corrosive; and, which is pretty surprising, will, upon the Affusion of an Acid, be entirely converted into a Snow-white Powder. Twenty-five or thirty Drops of this Liquid, taken twice a Day in Water, I have frequently known to afford great Relief in nephritic Disorders.

My fourth Reason is, That a Lixivium of Lime will dissolve human Stones, when out of the Body.

My fifth Reason is, That Lime seems to be, in general, a powerful Dissolver of Earth, and earthy Concretions. Thus Lime produces a great Fertility, when laid upon the most barren kinds of Land, as Gravel; that is, it helps to dissolve the

large Particles of Earth, and prepares it for furnishing Matter for a subsequent Vegetation. Hence it happens, that what *Boerhaave* remarks in the Passage quoted above, in regard to Alkalies uniting with Earth, and rendering it indissoluble, does not hold good with respect to the Salt of Lime, which is an Alkali *sui generis*, and in many Instances different, as to its Properties, from all others. See CALX.

I shall conclude this Article with remarking, that; as, in all Cases whatever, the principal Duty of a Physician consists in distinguishing accurately one Distemper from another; so, particularly with respect to the Stone, he must take care not to be deceived; for there are three Distempers, which mimic so exactly the Stone of the Kidneys, Ureters, and sometimes even of the Bladder, that it is not easy for a Person, not well versed in these things, to distinguish some Symptoms of these from the genuine Stone; I mean the Gout, latent Intermitting Fevers, and Hysterics. And, indeed, it is of great Importance, in the Practice of Physic, to distinguish the Symptoms caused by these three Distempers, when they seize upon any of the Viscera, from the genuine Disorders to which the Part is otherwise subject; for the Kidneys, Ureters, and Bladder, are not the only Parts subject to their irregular Attacks.

As to the Gout, when it fixes upon the Region of the Kidneys and Loins, and imitates the Stone, or when it affects the Neck of the Bladder, it must be distinguish'd from the Stone, by carefully comparing the Patient's Complaints with the Symptoms of the genuine Stone above enumerated; in which I have been designedly very full, and given them from different, and those the best, Authors, that they may be view'd in every Light. The Constitution of the Patient is also to be taken into Consideration, which, if gouty, gives an useful Hint to the Physician; and the Unsuccessfulness of Remedies, which usually relieve in the Stone, lay a strong Suspicion, that the Disorder may have another Cause. See the Quotation above from *Hoffman*.

As to Hysterics imitating the Stone, *Sydenham* has observ'd, and since him, I believe, every Physician concern'd in much Practice, that sometimes this Disease seizes one of the Kidneys, where, by the violent Pain it occasions, it entirely resembles a Fit of the Stone, not only with respect to the kind of Pain, and the Part affected, but likewise by the violent Vomiting wherewith it is accompanied, and the Pains extending thro' the whole Duct of the Ureter: So that 'tis hard to distinguish, whether the Symptoms are from the Stone, or an Hysterical Disorder; unless, perhaps, some Misfortune having depressed the Woman's Spirits, a little before the Disorder came on, or the Discharge of green Matter by Vomit, should shew that the Symptoms are rather to be ascrib'd to an hysterical Disorder than the Stone. The Bladder also is occasionally affected with this delusory Symptom, causing Pain, and a Suppression of Urine, as in the Case of an Obstruction of the urinary Passages from a Stone. This last Species rarely happens, but the former more frequently. Both usually attack such Women as are greatly debilitated by frequent hysterical Fits. *Sydenham*.

The Constitution of the Patient, and the Symptoms, are to be accurately consider'd in this Case, as well as in nephritic Symptoms proceeding from the Gout. This Disorder I have frequently known instantly remov'd by Bleeding, without any ill Consequences, notwithstanding the Cautions given by some practical Writers against bleeding in Hysterics. See HYSTERICA.

As to intermitting Fevers imitating the Stone, and other Disorders, it is remarkable, that the general Use of the *Peruvian Bark* has introduc'd many anomalous Symptoms of these Fevers utterly unknown to the Antients. These Irregularities were, so far as I know, first taken Notice of by *Morton*, in his most excellent Dissertation, *de Proteiformi Febris intermittens Genio*; where there are many important Observations, so strictly genuine and true, that a Physician must have practis'd to very little Purpose, if he has not almost daily observ'd Cases which strongly confirm them. It seems as if the Bark, by stinging, and not carrying off the Disorder, leaves in the Blood a Portion of the morbid Matter, which causes the Fever; or which, to use the Language of *Sydenham*, Nature raises a Fever, in order to expel. Now this is, in the Course of the Circulation, convey'd to, and deposited upon, one or other of the Viscera, there causing the Symptoms which are raised by any other Obstructions, or spasmodic Constrictions, in the same Part. Hence Fevers, which have been treated with the Bark, frequently afflict the miserable Patient for many Years, from time to time, under the Mask of other Disorders. But, to do Justice to a Remedy now in so great Reputation not altogether undeservedly, I must confess, that these irregular Symptoms sometimes precede its Exhibition, and even constitute the very first Scene of the Tragedy, before the Fever has shewn itself to be what it really is.

In order to distinguish these Cases, regard is to be had to the genuine Symptoms attending Disorders of the Part affected, to the Constitution, and the Inefficacy of Remedies which usually

usually relieve. If a Fever has preceded, which was treated with the Bark, tho' many Years before, it lays a Foundation for suspecting that to be the latent Cause, especially if it has frequently returned, and as often been treated with the Bark. But if a Sediment of a Pink-colour subsides to the Bottom of the Urine, or the Pain is periodical, it puts the Case out of Dispute. It often, however, happens, that tho' a latent Fever is the Cause of the Complaints, yet at first there is no Separation in the Urine, nor do the Symptoms recur at any regular Periods; but, after prudent Evacuations, the Periods generally become more regular, and the Disease betrays its Family by the Sediment above described. The Method, therefore, is to take away some Blood; after this, to give one lenient Purge, or more, if necessary. The Alteratives should consist princi-

pally of neutral Salts, either natural, as Nitre, or artificial, as Juice of Lemons with Salt of Wormwood, distil'd Vinegar with volatile Sal Ammoniac, and some simple Water as a Vehicle, and an Addition of a proper Syrup to make it agreeable; the *Terra Foliated Tartari*, otherwise call'd *Tartarus Regeneratus*; *Tartarus Tartarizatus*; but, above all, the *Tartarus Vitriolatus*, perfectly neutraliz'd, according to *Boerhaave's* Method. Such a Treatment will very seldom fail to make the Disorder; if caused by an Intermitting Fever, appear in its proper Form; and then the *Peruvian Bark*, if it should be judged proper, will generally cure it; or a Continuation of the same neutral Salts, with lenient Purges, intercalated at proper Intervals, will generally perform a Cure, especially if assisted with Blisters, if necessary, and nothing forbids their Use.

E N D of V O L. I.

EXPLICATIONS

OF THE

TABLES in Volume the First.

TABLE I.

THE Figures mark'd A, B, C, D, E, F, G, H, L, M, N, O, P, Q, R, S, T, U, W, X, Y, Z, are explain'd under the Article ACETUM.
All the rest are explain'd under the Article VINUM.

TABLE II.

All the Figures in this Table are explain'd under the Article ACUS.

TABLE III.

The Figures mark'd 1. 1. 1. are explain'd under the Article ADEPS.

2. 3. 4. are explain'd under ALLANTOIS.

TABLE IV. TABLE V.

These Figures are explain'd under the Article ARTERIA.

TABLE VI.

From the Philosophical Transactions.

FIGURE I.

The Trunks of the Vena Cava, with their Branches, dissected; from an adult human Body.

A. A. The Orifice of the Vena Cava, as it appears when cut from the Right Auricle of the Heart.

a. The Orifice of the Coronary Vein of the Heart.

B. A. The superior or descending Trunk of the Vena Cava.

C. C. A. The inferior or ascending Trunk; so distinguish'd from the Motion of the Blood in these Trunks, which is contrary to their Position.

D. D. The Subclavian Veins.

†. That Part of the Left Subclavian Vein, where the Thoracic Duct enters it, and discharges itself of its Chyle and Lymph.

b. The Vena Azygos, with its Branches going to the Ribs;

2. c.

c. The superior Intercoastal Veins.

d. d. The internal Mammary Veins.

E. E. The Right and Left Iliac Branches.

F. F. The internal Jugular Veins.

G. G. The external Jugulars.

H. H. The Veins which bring Blood from the lower Jaw; and its Muscles.

I. I. The Trunks of the internal Jugulars; cut off at the Basis of the Skull.

f. The Veins of the Thyrmus and Mediastinum.

g. g. The Veins of the Thyroid Glands.

h. The Vena Sacra.

i. The internal Iliac Branch.

k. The external.

K. K. The Occipital Veins.

L. The Right Axillary Vein.

M. The Cephalic.

N. The Basilic.

O. The Median Vein.

P. The Trunk of the Veins of the Liver.

Q. The Phrenic Vein of the Left Side.

R. The Right Phrenic Vein.

r. A large Vein from the Left Glandula Renalis, and Parts adjacent.

S. The Left Emulgent Vein.

T. The Right Emulgent, in this Subject very much lower than the Left, which is not usual.

U. U. The two Spermatic Veins.

Vol. I.

X. X. Two communicant Branches between the ascending Trunk of the Vena Cava and Vena Azygos, by which the Wind passes into the descending Trunk of the Cava, when we blow into the ascending at A. P. C. tho' the Trunk at A. P. and C. is firmly tied on the Blow-pipe.

*. An uncommon Branch between the lower Trunk of the Vena Cava and the Left Emulgent Vein.

Y. A Vein which brings Blood from the Muscles of the Abdomen into the external Iliac Branch.

Z. The Epigastric Vein on the Right Side.

1. 1. The Vena Saphena.

FIGURE 2.

The Trunks of the Vena Portæ dissected, and display'd.

A. A. A. The Branches of the Vena Portæ freed from the Liver.

a. The Umbilical Vein.

B. The Splenic Branch.

C. C. The Mesenteric Branches, which are continued from the Intestines.

b. The Trunk of the Vena Pancreatica, which receives Branches from the Duodenum.

c. c. The Vena Gastrica dextra Coronaria superior.

D. The superior Coronary Vein of the Stomach, on the Left Side.

E. The inferior Coronary Branch of the Stomach, on the Right Side. And,

F. The same Coronary Vein of the Left Side, removed from their proper Situations. From these two last are continued;

1. The Vena Epiploica superior dextra: And;

2. The Sinistra: With;

3. The Media.

G. The Vein call'd Vas Breve.

d. The Vena Duodeni.

H. The Vena Hæmorrhoidalis, arising from the Rectum and Anus; in this Subject emptying itself into the Left Mesenteric Branch; but in other Bodies (and particularly in a Preparation of these Veins) I find this Trunk of the Hæmorrhoidal Veins ending in the Ramus Splenicus.

TABLE VII.

LANCISI'S Explication.

a. a. The Olfactory Nerves.

b. b. The Optic Nerves cut.

c. c. The common Movers of the Eyes.

d. d. The Pathetic Nerves.

e. Processus Annularis.

f. f. The three Branches of the fifth Pair.

g. g. The sixth Pair.

h. h. The two Portions of the Auditory Nerve.

i. i. i. i. The Origin of the eighth Pair.

k. k. k. k. Several Ramifications of the Par Vagus, and Intercoastal Nerves.

l. l. A remarkable Communication betwixt the Phrenic Nerves and one of the Intercoastals, which helps to form the Brachial Nerves.

m. The Recurrent Nerve on the Left Side.

n. The Left Nerve of the ninth Pair.

o. The Right Nerve of the ninth Pair.

p. p. The Corpora Pyramidalia.

q. q. The tenth Pair cut.

r. r. The superior Extremity of the Nerves, commonly called Intercoastales; which, according to Lancisi, may be reckon'd an eleventh Pair.

EXPLICATIONS of the TABLES in Volume the First.

- t. t. t. The great Trunks of these Nerves.
 y. u. u. u. The Nervus Accessorius of the eighth Pair, and its Communication with the third Pair of the Vertebrales.
 x. x. x. The Phrenic Nerves, call'd also the Diaphragmatic Nerves, of which the Left is naturally longer than the Right.
 y. The inferior Opening of the Infundibulum.
 z. z. The Nerves which go to the Testes, Uterus, &c.

Additional Explication.

- r. r. The Brachial Nerves.
 2. 2. &c. The Communications of the Vertebral Nerves, with those commonly call'd Intercostals.
 3. 3. The Crural and Sciatic Nerves.

T A B L E VIII.

1. The Os Sincipitis on the Right Side.
2. The Os Sincipitis on the Left Side.
3. The Os Occipitis.
4. The Os Squamosum.
5. The Sutura Sagittalis.
6. 6. The Sutura Lambdoidalis.
7. The Processus Mammillaris.
8. Part of the lower Jaw.
9. The first Vertebra of the Neck, call'd Axis.
10. The second Vertebra of the Neck, call'd EPISTROPHÆUS.
11. 11. The Claviculæ.
12. 12. The Scapulæ.
13. 13. The Basis of the Scapulæ.
13. 14. The Costa inferior of the Right Scapulæ.
14. The Processus Brevis.
15. 15. The Acromion.
16. 16. The Spina Scapulæ.
17. 17. The Os Humeri.
18. 18. The Head of the Os Humeri.
19. The Asperities of the Left Os Humeri.
20. The external Protuberance of the Left Os Humeri.
21. The internal Protuberance of the Left Os Humeri.
22. 22. The Radius.
23. 23. The Ulna.
24. The Olecranon, or the Elbow, on the Right Side.
25. 25. The eight Bones of the Carpus.
26. 26. The four Bones of the Metacarpus.
27. The three Bones of the Thumb on the Left Side.
28. The Bones of the Fingers on the Left Side.
29. 29. The back Part of the Os Ilium, or Dorsum Ilii.
30. 30. The Spine of the Ilium on each Side.
31. 31. The Protuberances of the Os Ischium on each Side.
32. The internal Part of the Os Pubis.
33. The Os Sacrum.
34. The Os Coccygis.
35. 35. The large Sinus of the Ischium.
36. 36. The Foramen of the Ischium on each Side.
37. 37. The Femur on each Side.
38. 38. The Head of the Femur.
39. The Neck of the Femur.
40. 40. The Trochanter major, on each Side.
41. 41. The Trochanter minor on each Side.
42. 42. 42. 42. The two inferior Protuberances of the lower Appendix of the Os Femoris.
43. 43. The Tibia on each Side.
44. 44. The Head of the Tibia on each Side.
45. 45. The superior Appendix of the Fibula on each Side.
46. 46. The inferior Appendix of the Fibula on each Side.
47. 47. The Fibula on each Side.
48. 48. The Os Calcis on each Side.
49. 49. The Astragalus on each Side.
50. The Bones of the Tarsus.
51. The Bones of the Metatarsus.
52. The Bones of the Toes.
- a. b. c. d. e. f. The Spinal Processes of the Vertebrae of the Neck.
- n. n. n. n. n. The transverse Processes of the Vertebrae of the Neck.
- o. o. o. o. o. o. o. o. o. o. The transverse Processes of the Vertebrae of the Back on the Right Side.
- p. p. p. p. p. p. Some of the Spinal Processes of the Vertebrae of the Back.
- r. r. r. r. r. r. The Spinal Processes of the Vertebrae of the Loins.
- s. s. s. s. s. s. s. s. s. s. s. The transverse Processes of the Vertebrae of the Loins.
- b. i. k. l. m. n. o. p. q. r. s. t. The Ribs on the Left Side, at the Articulation of their small Tubercle with the transverse Processes of the Vertebrae.
- u. The last Vertebra of the Back.
- w. x. y. z. The Bodies of four of the Vertebrae of the Loins.

T A B L E IX.

LANCISI's Explication.

The Figures of this Plate are of the utmost Importance, since their principal Design is to exhibit various Figures of the human Skull, with which, according to *Hippocrates* in his Book *de Vulneribus Capitis*, every Physician and Surgeon ought to be well acquainted; for, since the natural and most common Figure of the Head resembles that of an oblong Sphere, its anterior and posterior Parts are of course somewhat prominent: But it frequently happens, that Skulls vary from each other, not only in the Number of Sutures, but also in the Diversity of Shapes and Forms.

FIG. 1. represents a human Skull, of the natural Form with the Sagittal Suture, continued to the Root of the Nose, to which it also reaches in *Fig. 10.* but in this latter the Coronal Suture is wanting; and tho' this Suture is observed in *Fig. 17.* yet the anterior Eminence, which is generally seen on the Sinciput, and upper Part of the Forehead, is wanting; but the posterior Eminence, belonging to the Occiput, remains. Tho' in *Fig. 8.* the posterior Part of this Eminence is only to be observed, yet, on the Occiput, it is a little more depressed than in other Skulls.

FIG. 2. exhibits the Os Petrosum cut through, in order to give a Prospect of the Concha, the Cochlea, and the Foramina which open into it.

1. The Concha.
2. The Beginning of the Styliform Process.
3. The Mastoid Process.

FIG. 3. is, by *Eustachius*, principally intended for the Confutation of those, who, being more sway'd by Assertions than Fact, assert, with *Galen*, that the Sagittal Suture is never wanting, but always found in human Skulls; for, says *Eustachius*, "Tho' no Anatomist has hitherto adverted to it, I myself have frequently found the Sagittal Suture wanting; and some time ago I exhibited to public View and Examination fifteen human Skulls, in which there was not the smallest Appearance of a Sagittal Suture; tho', at the same time, all the other Sutures were to be distinctly and easily observed."

FIG. 5. and 6. represent both the Offa Petrosa, with the Foramina thro' which the Auditory Nerve enters.

FIG. 12. and 14. exhibit the Sella Turcica, with the Offa Cribriformia, and the Processus Cristati. In the Offa Cribriformia are observed the Foramina, thro' which the Processus Papillares, or Olfactory Nerves, pass. In *Fig. 14.* are observed the Foramina thro' which the Optic Nerves pass to the Eyes, the Foramina thro' which the Blood-vessels are admitted; as also the Sella Turcica. And in *Fig. 12.* all these Foramina are distinctly seen.

FIG. 13. represents that Side of the Os Cuneiforme which lies next to the Fauces, with its small Foramina, thro' which, according to some Anatomists, the Air enters, and reaches the Brain itself.

FIG. 16. represents the inferior Part of the Cranium, below the Os Sphenoides; with the Septum Medium of the Nose, which, when freed from the other Bones and Cartilages, is of a styliform Shape.

FIG. 17. represents a Cranium almost entirely round, which Figure is by some call'd *οσφῆς*, or *ἐξοκέφαλος*, with two preternatural Sutures, one running transversely thro' the Middle of the Head, from the Right to the Left Ear; and the other reaching all along the Head, from that Foramen which gives a Passage to the Spinal Marrow, to the Root of the Nose.

Lancisi takes no Notice of the other Figures.

FIG. 4. seems to be the Os Frontis, separated from the other Bones of the Cranium.

FIG. 7. seems to be an irregular Portion of the Cranium, also separated.

In *Fig. 8.* there appears an irregular Suture.

FIG. 9. is the Os Occipitis separate.

FIG. 11. seems to be another View of the Bone represented in *Fig. 16.*

FIG. 15. represents a Skull, in which I observe nothing greatly anomalous.

T A B L E X.

From EUSTACHIUS.

Represents the Muscles which are conspicuous on the fore Part.

1. 1. The Musculi Frontales.
2. 2. The Orbiculares Palpebrarum.
3. The Attollens Auriculam.
4. The Temporalis.
5. The Masseter.
6. Represents the Muscle call'd, by *Lancisi*, Constrictor, or Depressor Pinnae Narium.
7. The Dilator Alae Nasi.
8. The Zygomaticus.
9. The Place of the Elevator Labiorum, or Elevator Labiorum.

EXPLICATIONS of the TABLES in Volume the First.

orum communis, called by *Lancisi* Gracilis; but it is not expressed in this Figure.

10. The Elevator Labii superioris proprius.

11. 11. The Constrictor or Sphincter Labiorum, or Orbicularis Labiorum; by some called Oculatarius.

12. The Buccinator. The Reference points too low for this Muscle, which lies exactly betwixt the Constrictor Labiorum, Fig. 11. 11. and the Masseter, Fig. 5.

13. 13. The Musculi Mastoidei. 15. 15. those Parts of these Muscles which arise from the Clavicle.

14. 14. The Sternohyoidei.

16. 16. The Coracohyoidei.

17. The Scaleri.

18. Represents Part of the Cucullaris on the Right Side.

18. On the Left Side is the Levator or Elevator Scapulae, otherwise called Musculus Patientiae.

19. 19. The Place where the Fibres of the Pectoralis unite in some measure with those of the Deltoides.

20. 20. The Deltoides.

21. The Place in the Carpus, where the Palmaris Longus passes thro' a Ring in the Annular Ligament.

22. A remarkable Union of the Tendons of the Extensors of the three last Fingers.

23. 23. The Productions of the Peritonæum, which, perforating the Muscles of the Abdomen at the Rings, descend to the Scrotum.

24. 24. The Place where the three Tendons of the Sartorius, Gracilis, and Semimembranosus, are inserted into the anterior, and internal Part of the Tibia, just under the Knee.

25. 25. The Tendons of the Extensors of the Toes, which are secur'd by a Ligament at the Ankle, as appears on both Sides. But on the Right Side internally another Ligament is represented, which fixes the Tendons of the Extensor longus Digitorum, the Tibialis Posticus, and the Flexor Pollicis.

26. 26. The Musculus Pectoralis.

27. The Triceps Extensor Cubiti on the Right Side.

28. and 30. The Biceps on the Left Side according to *Lancisi's* Explication.

29. Part of the Triceps Extensor on the Left Side.

30. The Biceps on the Right Side. *N. B.* The prick'd Line is not carried far enough by three Lines.

31. The Brachæus Internus.

32. The Anconæus.

33. The Pronator Rotundus.

34. 34. The Supinator Longus.

35. 55. The Radiæus externus, according to *Lancisi*.

36. The Extensor Carpi Ulnaris.

37. 37. The Cubitæus internus, according to *Lancisi*.

38. The Radiæus internus, according to *Lancisi*.

39. 39. The Palmaris with its tendinous Expansion.

40. 40. Tendons of the Muscles of the Thumb.

41. The Tendon of the Adductor Pollicis.

42. The Extensor magnus Digitorum.

43. The Ligamentum Carpi.

44. 44. The Tendons of the Iliaci Interni.

45. 45. The Pectinæus.

46. One of the Heads of the Triceps.

47. 47. The Rectus Femoris on each Side.

48. 48. The Vastus externus on each Side.

49. 49. The Vastus internus on each Side.

50. The Gracilis.

51. The Semimembranosus not well distinguish'd in the Figure.

52. The Sartorius on each Side.

53. A Part of the Origin of the Vastus externus.

54. 54. The Membranosus.

55. 55. The Tibialis Anticus.

56. The Gemelli.

57. 57. The Solæi.

58. The Tendo Achillis.

59. According to *Lancisi*, is the Extensor digitorum longus.

60. 60. The Tendons of the Extensors of the Toes. The other 60 is inserted in the Figure by Mistake.

61. The Tendons of the Extensor Longus, Tibialis Posticus, and Flexor Pollicis.

A. A. Portions of the Latissimus Dorsi on each Side.

B. B. The Indentations of the Serratus major anticus.

C. C. The Sternum.

This Explication is principally according to *Lancisi*, as the Figure is taken from his Edition of *Eustachius*; but I think it is not very accurate.

TABLE XI. From EUSTACHIUS.

1. Two Muscles upon the Occiput, called by *Eustachius* Quadrati.

2. The Musculus Cucullaris on the Left Side, that on the Right Side being remov'd.

3. The Splenius.

4. The Musculus Mastoideus.

5. The Musculus Patientiae, or, Levator Scapulae proprius.

6. The Rhomboides.

7. The Articulation of the Clavicle with the Scapula on the Right Side.

8. The Deltoides.

9. The Teres Minor.

10. The Teres Major.

11. 11. The Latissimus Dorsi on each Side.

12. The Glutæus major.

13. The Glutæus medius.

14. The Musculus Pyriformis.

15. The Quadratus femoris.

16. The Biceps femoris.

17. The Semimembranosus.

18. The Membranosus, according to *Lancisi*.

19. 19. The Vasti Externi.

20. The Gastrocnemii.

21. The Soleus.

22. The Plantaris.

TABLE XII. From RIDLEY.

FIGURE I.

Exhibits the Basis of the Brain, with Part of the Medulla Oblongata, the Blood-vessels being injected with Wax.

A. A. The fore Lobes of the Brain.

B. B. The hinder Lobes.

C. C. The Cerebellum.

D. D. The lateral Sinuses.

E. E. The Vertebral Arteries, as they pass between the first Vertebra, and the Bone of the Occiput.

F. The Vertebral Sinus.

G. G. G. G. G. The Dura Mater on the Right Side taken off from the Spinal Marrow, and remaining on the Left.

I, 2, 3, 4, &c. The ten Pair of Nerves belonging to the Brain, with seven of the Spinal Marrow:

a. The Foramen that opens into the Pituitary Gland from the Infundibulum.

b. b. The two white Protuberances behind the Infundibulum.

c. c. The two Trunks of the carotid Artery cut off where they begin to run betwixt the fore and hinder Lobes of the Brain.

d. d. The two Arteries joining the Carotids, with the cervical Artery called the communicant Branches.

e. e. Two large Branches of the cervical Artery, sometimes seeming as tho' they came from the communicant Branch on each Side, from the first of which the Plexus Choroides hath its Original in chief, and from the last the Plexus Choroides of the fourth Ventricle.

f. Several little Branches arising from the carotid Artery.

g. The cervical Artery composed of the two Trunks of the Vertebral Artery within the Cranium.

h. h. The two Trunks of the Vertebral Artery.

i. i. i. The Spinal Artery.

k. A small Branch of an Artery running thro' the ninth Pair, broken off from its other Part thro' Inadvertency of the Graver.

l. l. The Crura of the Medulla Oblongata.

m. m. The annular Protuberance, or Pons Varolii.

n. That Part of the Caudex Medullaris on the Right Side, called by *Willis* and *Vieussenius*, Corpora Pyramidalia.

o. That Part on the same Side called Corpus Olivare.

p. The foremost Branch of the carotid Artery, dividing the fore Lobes of the Brain, consisting of two Branches, one of them only appearing here.

q. q. Little Branches of Arteries helping to make the Plexus Choroides in the fourth Ventricle.

r. r. r. Branches of Arteries dispersed from the cervical Artery upon and thro' the annular Protuberance.

s. s. Part of the second Process, or Pedunculi of the Cerebellum.

*. *. The Spinal accessory Nerve; not expressed very plain.

FIGURE 2.

Exhibits the Cerebellum cut thro' on its hinder Part, and reclined laterally.

A. A. A. The Cerebellum.

B. B. The arborescent Ramification of the Medullium of the Cerebellum appearing, being cut right downwards.

C. C. The pathetic Nerves.

c. c. The Nates; the Engraver has by Mistake made the Letters c. c.

d. d. The Testes.

e. The transverse Process, whence the pathetic Pair of Nerves have their Original.

f. Glandula Pincalis.

EXPLICATIONS of the TABLES in Volume the First.

- g. g. The first Process of the Cerebellum running from it to the Nates, here extended laterally.
 h. h. The third or chordal Processes.
 i. i. The transverse medullary Process in the fourth Ventricle, from whence the soft Branch of the seventh Nerve has its Original.
 k. k. The medullary Process descending from the transverse Process behind the Testes, down to the aforementioned other medullary transverse Process.
 l. l. The Originals of that Process a little too low.
 m. m. The eighth Pair of Nerves.
 n. The Calamus Scriptorius, or Extremity of the fourth Ventricle.
 o. The Spinal Marrow.
 p. p. The accessory Nerves.
 q. q. The tenth Pair of Nerves.

T A B L E XIII. From CHESELDEN.

The Engraver by Mistake has omitted numbering the Figures in this Plate.

1. in FIG. 1. The Right Ventricle of a Foetus distended with Wax.
 2. The Right Auricle.
 3. The Left Auricle.
 4. 4. Branches of the Pulmonary Veins of the Right Lobe of the Lungs, those of the Left being cut off short.
 5. 5. The Arteries of the Left Lobe of the Lungs.
 6. The Vena Cava descendens.
 7. Aorta Ascendens.
 8. Arteria Pulmonalis.
 9. Ductus arteriosus.
 10. in FIG. 2. The Under-side of a Heart of a younger Foetus.
 11. The Right Auricle cut open.
 12. The Cava Descendens cut open.
 13. Tuberculum Loweri.
 14. The Foramen ovale closed with its Valve.
 15. The Mouth of the Coronary Veins.
 16. in FIG. 3. The Umbilical Vein.
 17. 17. 17. Branches of the Vena Portæ in the Liver.
 18. Ductus venosus. Here the Engraver by Mistake has omitted a prick'd Line from the 18 to the Vessel referr'd to.
 19. Branches of the Cava in the Liver.
 20. 20. Vena Cava.
 1. in FIG. 4. Larynx.
 2. 2. The internal Jugular Vein.
 3. 3. The Subclavian Vein.
 4. Cava descendens.
 5. The Right Auricle of the Heart.
 6. The Right Ventricle.
 7. Part of the Left Ventricle.
 8. Aorta Ascendens.
 9. Arteria Pulmonalis.
 10. The Right Lobe of the Lungs, part of which is cut off, to shew the great Blood-vessels.
 11. The Left Lobe.
 12. 12. The Diaphragm.
 13. The Liver.
 14. The Ligamentum Rotundum.
 15. The Gall-bladder.
 16. The Stomach, pressed by the Liver towards the Left Side.
 17. 17. The small Guts.
 18. The Spleen.

T A B L E XIV. From EUSTACHIUS.

FIG. 1.

- The Liver, Stomach, and intestinal Tube.
 a. a. The Liver turn'd upwards, in order to shew,
 b. The Gall-bladder.
 c. The Cystic Duct, which uniting with,
 d. The Hepatic Duct, forms,
 e. The Ductus communis Choledocus.
 f. The Vena Portæ.
 g. Some small Branches of the Hepatic Artery.
 h. The Vena Umbilicalis cut off.
 i. i. i. The Stomach, with its coronary Vessels.
 k. The Spleen.
 l. l. l. A Portion of the Omentum, with some of the Adipose Glands.
 m. m. m. Windings of the small Intestines.
 n. n. n. Part of the Colon.
 o. o. o. The Fascia Muscularis of the Colon, which, being not so long as the Colon, contracts that Intestine, in such a manner as to form various Cells.
 p. The Extremity of the Colon, where it makes a Flexure, in order to form the Rectum.
 q. The Rectum.
 r. The Anus.

- s. The Sphincter Ani.
 t. t. The Elevatores Ani.

FIG. 2.

- Represents the Oesophagus at A. B. &c.
 C. C. The Stomach.
 D. The Cardia.
 E. The Pylorus.
 F. The external Membrane of the Stomach, which it borrows from the Peritonæum raised.
 G. The Muscular Coat of the Stomach raised.

FIG. 3. Represents

- A. B. The Oesophagus.
 C. C. The Pancreas.
 D. The Pancreatic Duct, in its Progress to,
 E. The Duodenum.

FIG. 4.

- A. The Larynx.
 B. The Aspera Arteria.
 C. C. The Lungs.
 D. The Thymus.
 E. E. Two Branches of Nerves passing to,
 F. F. F. The Diaphragm.

FIG. 5.

- A. The Larynx.
 B. The Aspera Arteria.
 C. C. C. C. Four Lobes of the Lungs.
 D. The Heart inclosed in the Pericardium.
 E. The Vena Cava superior.
 F. The Subclavian and Carotid Arteries.

T A B L E XV. From GLISSON.

That the Structure of the Liver may be the better understood, *Glisson* has given us two Delineations of it, one of which represents the Distribution of Vessels in its Cavity, and the other those of its convex Part. But that Author lays down the following general Cautions with regard to both his Representations.

1st. That, in a duly prepar'd Liver, there is a far greater number of Ramifications, and capillary Vessels, than are really express'd in his Figures. This, he says, was designedly done, because by expressing the Traces of the small Ramifications distributed thro' the Meditullium of the Liver, the Delineation of the larger and more important Vessels had been too much clouded.

2dly, He tells us, that we are not to expect the same Distribution of Vessels in all Livers; that his own Representations are not to be made invariable Standards; that when his Figures were engrav'd, he had four newly prepar'd Livers, by him, each of which differ'd in some respect or other from the rest; and that Nature, in the Formation of this Organ, delights in that Variety observable in all her other Productions.

3dly, He tells us, that the smaller Vessels, the Arteries, for Instance, the Nerves, and the Lympheducts, are not always of the same Number in all Livers; that their Deficiency, with regard to Number, was continually compensated by their Largeness; that there were some Livers which had two hepatic Arteries, but smaller than the usual Size; that he himself saw a Liver with three Nerves, a small Ramification of one of which ran to the Gall-bladder; that the Lympheducts themselves varied very much as to their Number in different Livers; and that, in his own Representation, he had only exhibited two Lympheducts, because in the Liver delineated, when boiled and prepar'd, he found no more, tho' in other Livers he had frequently observ'd a larger Number.

FIG. 1. & 2. Exhibit the Liver freed from its Parenchyma.

FIG. 1. Represents the flat Part of the Liver, together with the most conspicuous Vessels in it.

- A. That Part of the Liver which lies next to the Back.
 B. Its Right Side.
 C. Its anterior Edge.
 D. Its Left Side.
 E. The Vena Cava, where it passes thro' the Diaphragm.
 E. 1. E. 2. E. 3. E. 3. Its three principal Branches distributed almost thro' the whole Liver.
 F. The Vena Portæ turn'd upwards, that other Vessels may be the more easily seen.
 F. 1. F. 2. F. 3. F. 4. Four Branches of the Vena Portæ distributed to the several Quarters of the flat Part of the Liver, but the fifth Branch is not observ'd on this Side.
 G. The Gall-bladder.
 H. H. The Vena Umbilicalis become a Ligament.
 I. The Ductus Communis Choledochus.
 K. The Canalis Venosus, now performing the Office of a Ligament.
 L. The Trunk of the Vena Cava descendens.
 a. A small Portion of the Membrane investing the Liver.
 b. That

EXPLICATIONS of the TABLES in Volume the First.

- b. That Part of the Diaphragm which surrounds the Vena Cava.
 c. The Biliary Duct.
 d. The Cystic Duct.
 e. The Place where these Vessels meet.
 f. The Hepatic Artery.
 g. o. The Hepatic Nerves.
 p. p. p. p. The common Capsula laid open.
 q. q. The Lympheducts.
 m. m. m. &c. The smaller Branches of the Vena Portæ.
 n. n. n. &c. The small Branches of the Vena Cava.

FIG. 2.

Represents the convex Part of the Liver, together with the Vessels situated in it.

- A. The superior Part of the Liver which lies next to the Back.
 B. Its Right Part.
 C. Its lowest anterior Part.
 D. The Left Part of the Liver.
 E. The Trunk of the Vena Cava above the Diaphragm.
 F. The Sinus of the Vena Portæ.
 F. 1. F. 2. F. 3. F. 4. Four Branches of the Vena Portæ distributed in four different Directions thro' the Liver.
 F. 5. The fifth Branch of the Vena Portæ, which could not be describ'd in the preceding Figure.
 G. The Gall-bladder.
 H. H. The umbilical Vein.
 I. The Ductus communis Choledochus.
 a. a. a. a. The small Ramifications of the fifth Branch of the Vena Portæ cut off, that the other Vessels may be the more distinctly seen.

- b. That Portion of the Diaphragm where it is join'd to the Vena Cava.
 c. The Biliary Duct.
 d. d. The Cystic Duct.
 e. The Angle where these Vessels are join'd.
 m. m. m. &c. The smaller Branches of the Vena Portæ.
 n. n. n. &c. The smaller Branches of the Vena Cava.

FIG. 3.

- A. The convex Part of the Liver.
 B. Its Right Part.
 C. The concave Part of the Liver.
 D. Its Left Part.
 E. The Trunk of the Vena Portæ turn'd upwards, that the other Vessels may be the more easily seen.
 1. 2. 3. 4. 5. The five larger Branches of the Vena Portæ.
 F. The Ductus communis Choledochus.
 G. The Biliary Duct, and its first Division.
 H. The Cystic Duct.
 I. The Gall-bladder.
 a. a. a. a. &c. The common Capsula laid open.
 b. b. b. b. b. The Subdivisions of the biliary Duct.

TABLE XVI.

FIG. 1. From EUSTACHIUS.

Represents the Kidneys, Glandulæ Succenturiatæ, Bladder, and Male Organs of Generation, with their Vessels.

- A. A. The Kidneys.
 B. B. The Glandulæ Succenturiatæ.
 C. C. The emulgent Vessels, together with those which are distributed in the Membranes of the Kidneys.
 D. D. The hypogastric Vessels, which, branching off from the Iliacs, are distributed in the urinary Bladder, and Penis.
 E. E. The Course of the Ureters.
 F. F. The Course of the spermatic Vein and Artery to the Testicles. In these, several Branches appear cut off, which are distributed in the Peritonæum.
 G. The urinary Bladder.
 H. H. The Vasa Deferentia.
 I. I. The Testicles.
 K. The Urachus cut off.
 L. The Penis.
 M. M. The Musculi Erectores Penis.

FIG. 2. From CHESLEDEN.

1. The under Side of the Bladder.
 2. 2. The Ureters.
 3. 3. Vasa Deferentia.
 4. 4. Vesiculæ Seminales.
 5. The Prostate Gland.
 6. The urinary Duct.

FIG. 3. From DE GRAAF.

A. A Portion of one of the Vasa Deferentia, in which there is a conspicuous Cavity.

VOL. I.

- B. The Serpentine Flexures about the End of the Epididymis partly unravel'd.
 C. A Piece of the Epididymis entirely unravel'd.
 D. The Serpentine Flexures about the Middle of the Epididymis partly unravel'd.
 E. The same Part of the Epididymis entirely unravel'd.
 F. Another Part near the Middle of the Epididymis partly unravel'd.
 G. The same Part of the Epididymis entirely unravel'd, so that it appears to be one continu'd Vessel, which, as it gradually approaches to the superior Part of the Testicle, becomes proportionably smaller.
 H. The large Globe or Beginning of the Epididymis.
 I. The Belly of the Testicle.
 K. The Arteria Præparans, which ascends from the inferior Part of the Testicle thro' its Belly.
 L. L. The Ramifications of the Venæ Præparantes.

FIG. 4. and 5.

Exhibit the Testicles of brute Animals, in which the Vessels belonging to the Testicles are not only, by the Assistance of Art, but also naturally, more easily and distinctly observ'd.

FIG. 4. From DE GRAAF.

- A. A. A. The Tunica Vaginalis of the Testicles laid aside.
 B. The preparing Artery, which, before it approaches to the Testicle, is twisted from one Side to the other, upwards and downwards.
 C. The Vasa Præparantia, as yet connected by a certain slender Membrane.
 D. D. The Arteria Præparans, ascending thro' the Belly of the Testicle.
 E. The Branches of the Vena Præparans.
 F. The Testicle and Epididymis of a Dog turgid with Seed.
 G. The larger Globe of the Epididymis.
 H. The lesser Globe of the Epididymis.
 I. The Beginning of one of the Vasa Deferentia.
 K. One of the Vasa Deferentia ty'd in a Dog before Copulation.

FIG. 5. From DE GRAAF.

- A. The Vasa Præparantia cut.
 B. The Vasa Præparantia too confusedly express'd by the Engraver, as they are also in the preceding Figure.
 C. The Ramifications of the Vasa Præparantia going off to the Epididymes.
 D. D. The largest Branch of the Arteria Præparans running thro' the Belly of the Testicle.
 E. E. The Ramifications of the Venæ Præparantes.
 F. The Testicle of a Dog turgid with the seminal Fluid.
 G. The larger Globe of the Epididymis turgid with the seminal Fluid.
 H. The smaller Globe of the Epididymis, in like manner distended by a large Quantity of the same Fluid.
 I. The End of the Epididymis, or the Beginning of the Vas Deferens.
 K. The Vas Deferens in like manner ty'd in the Groin of a Dog before Copulation, that the seminal Vessels, when fill'd with the seminal Fluid, may appear more distinctly.

FIG. 6. From DE GRAAF.

Exhibits an anterior Prospect of the genital, and some of the urinary, Parts, still cohering with each other.

- A. The anterior Part of the urinary Bladder.
 B. The Neck of the urinary Bladder.
 C. C. Certain Portions of the Ureters.
 D. D. Certain Portions of the Vasa Deferentia.
 E. E. Vessels running off to the Vesiculæ Seminales.
 F. F. The Vesiculæ Seminales.
 G. G. The anterior Part of the Prostatæ, or Corpus Glandulosum.
 H. The Urethra, adjoining to its spongy Part.
 I. I. The spongy Part of the Urethra.
 K. K. The Muscles which erect the Penis, call'd the *Musculi Erigentes, Extendentes, or Erectores*.
 L. L. The Beginnings of the Corpora Nervosa, which, when the Penis is inflated, protuberate like so many small Bladders.
 M. M. The Skin of the Penis laid aside.
 N. N. The Duplication of the Skin, which constitutes the Prepuce.
 O. O. The Duplication of the Skin, which forms the Prepuce.
 P. P. The Dorsum Penis.
 Q. The Glans Penis.
 R. The Meatus Urinarius, with which the anterior Part of the Glans is perforated.

EXPLICATIONS of the TABLES in Volume the First.

- S. S. The Nerves running upon the Dorsum Penis.
T. T. The Arteries running upon the Dorsum Penis.
V. The Corpora Nervosa joining together.
W. W. Two Veins which unite themselves, and run in one remarkable Branch along the Dorsum Penis.
X. The same Vein laid open, that the small Valves may be observ'd in it.

FIG. 7. From DE GRAAF.

Represents both the Venæ Præparantes and Hypogastricæ with their Ramifications, as distended with Air blown into them, and running off to the Testes, the Tubæ, the anterior Part of the Uterus, and its Vagina.

- A. The Bottom of the Uterus.
B. The Neck of the Uterus.
C. The Vagina.
D. The Left Testicle, almost in its natural Situation.
E. The Left Fallopian Tube, in its natural Situation.
F. The Right Testicle, drawn downwards, out of its natural Situation.
G. The Right Tube, drawn upwards, out of its natural Situation.
H. H. The Venæ Præparantes cut.
I. I. I. I. The Anastomoses between the Venæ Præparantes.
K. K. K. K. The Branches of the Venæ Præparantes running to the Testes.
L. L. The Branches of the Venæ Præparantes running off to the Tubes, and to their foliaceous Decoration.
M. M. The Venæ Præparantes join'd by an Anastomosis to the Hypogastric Veins.
N. N. The Hypogastric Veins ty'd to the Extremities of Pipes, in order to be inflated.
O. O. O. O. Large Branches of the Hypogastric Veins running off to the Sides of the Uterus.
P. P. P. P. P. P. Branches from them going to the Uterus.
Q. Q. Branches of them reaching to the Venæ Præparantes.
R. R. Branches going from them to the Tubes.
S. S. Their Branches, reaching to the Ligamenta Rotunda of the Uterus, cut off.
T. T. Their Branches going to the Ligamenta Lata of the Uterus.
V. V. V. V. Their large Branches going to the Vagina.
X. X. Their Branches going of to the Fat, and membranous Parts adjoining to the Sides of the Vagina.
Y. The urinary Bladder cut about the Neck.
Z. Z. The fleshy Fibres of the Sphincter Muscle.
a. The Clitoris.
b. b. Its Crura.
c. c. Its Muscles.
d. Its Prepuce.
e. Its Glans.
f. f. The Nymphæ.
g. The Orifice of the Urethra.
h. The Mouth of the Vagina.
i. i. The Labia.
k. k. Veins running along the Dorsum of the Clitoris, join'd to each other by an Anastomosis.
l. l. The Branches of these Veins running out to all the Parts of the Pudendum.
m. The Perinæum.
n. n. The Anastomoses between the Veins of the Uterus and Vagina.
o. o. o. The Anastomoses between the Hypogastric Veins of both Sides.

T A B L E XVII.

From SWAMMERDAM, DE GRAAF, and CHESELDEN.

FIG. 1. The fore Prospect of the Uterus of a Woman after Delivery.

- A. A. The Spermatic Arteries.
B. B. The Spermatic Veins distributed thro' the Tubes and Fundus of the Uterus.
C. C. The Corpora Pyramidalia, composed of the Spermatic Arteries and Veins.
D. D. The membranous or broad Ligaments of the Womb, thro' which the Blood-vessels pass to the Fallopian Tubes, call'd by some Alu Vespertilionum.
E. E. The Fallopian Tubes well express'd.
F. F. Their Aperture at the Expansum Foliaceum, on each Side, call'd Morsus Diaboli.
G. G. The round or inferior Ligaments of the Womb.
H. The Origination of the Veins and Arteries of those Ligaments.
I. The Valve in the Vein of the round Ligament, hindering the Relapse of the Blood to the Uterus.
K. K. The two Hypogastric Arteries.
L. L. L. The Hypogastric Veins variously contorted, and in their Progress implicated and perplex'd with the Arteries.

- M. Fundus Uteri.
N. The Cervix, or Neck of it, at the End of which is the inner Orifice of the Womb.
O. O. O. The Arteries on the Fundus or Bottom of the Womb, curl'd like the Tendrils of a Vine.
P. P. A great Number of Veins running over the exterior Tunic of the Uterus, in which the Anastomoses are singularly remarkable.
Q. The Vagina Uteri.
R. The Bladder of Urine inverted, to shew the Tortuosity of the Arteries of the Vagina, by which means its proper Vessels are represented somewhat longer than they ought to be.
S. The Orifice of the Urethra in the Vagina.
T. T. The Ureters.
V. V. Their Insertion into the Bladder, which is here turn'd downwards.
X. Part of the Urachus.
Y. Y. The Umbilical Arteries.

FIG. 2. From DE GRAAF.

Exhibits the anterior Part of the Uterus laid open by a crucial Incision.

- A. A. A. A. The Parts of the Uterus crucially divided, and so dispos'd, that its Cavities, and the Thickness of its spongy Substance, may appear.
B. The Cavity of the Bottom of the Uterus.
C. The Cavity of the Neck of the Uterus.
D. The Coarctation for the most part observable between the Cavities of its Bottom and Neck.
E. The Mouth of the Uterus.
F. That Part of the Vagina which adheres to the Mouth of the Uterus.
G. G. Certain Portions of the Tubes.
H. H. Probes introduc'd thro' the Fallopian Tubes to the Bottom of the Uterus.
I. I. I. I. The proper Membrane of the Uterus covering its internal Substance.
K. K. The interior less spongy Substance of the Neck of the Uterus.

FIG. 3. From CHESELDEN.

1. That Side of the Uterus which is next the Gut.
2. 2. The Fallopian Tubes.
3. 3. The Fimbriæ.
4. 4. The Ovaria.
5. The Mouth of the Uterus.
6. 6. Ligamenta Rotunda.
7. The Inside of the Vagina.
8. The Orifice of the Meatus Urinarius.
9. The Glans Clitoridis.
10. 10. The external Labia of the Vagina.
11. 11. The Nymphæ which are continu'd from the Præputium Clitoridis.

T A B L E XVIII.

This entire Table is explain'd under the Article AURIS.

T A B L E XIX.

This Table is explain'd under the Article OCULUS.

T A B L E XX. and XXI.

These are explain'd in the Tables.

T A B L E XXII.

From HEISTER.

A. B. Two Lancets of different Sizes. These are used, especially the smaller Sort, in opening Veins, for which Reason the Greeks call'd them Phlebotomi; but the larger Sort are used for opening Abscesses with.

C. A Pair of strait Scissars, fit for many Uses. The Surgeon should be furnish'd with several Pair of these of different Sizes.

D. A Pair of crooked Scissars, proper to be used in dividing Fistulas, and in many other Cases.

E. A Pair of Forceps furnish'd with Teeth at one End. These are used to remove Dressings, and sometimes to extract Splinters or other Things; they are also serviceable in anatomical Dissections. Forceps of this kind are commonly made of Steel, but those of Silver are much neater.

F. A Razor.

G. A strait Incision-knife.

H. A crooked Incision-knife.

I. A strait double-edg'd Incision-knife.

K. A Probe, one End of which is broad and thin, for discovering a Fissure in the Cranium, and other Uses; the other End is rounded, to examine the Depth and Situation of Wounds; for which Uses also the Probe L. may serve. The neatest Probes are made of Silver, tho' they are frequently also made of Steel, Ivory, or Whalebone.

M. A

EXPLICATIONS of the TABLES in Volume the First.

M. A groov'd Probe, or Conductor, to direct the Edge of the Knife or Scissars in opening Sinuses or Fistulæ, in order to preserve the subjacent Vessels, Nerves, and Tendons, from being injur'd; the Ornament at the upper Part of it is for a Handle, tho' sometimes that End is made in the Form of a Spoon, as you may see at N. that it may contain a Powder to sprinkle upon Wounds or Ulcers; sometimes also it is forked at the End, that it may be useful in the Operation for dividing the Frænum of the Tongue, as at O.

P. is a Spatula. The Use of this Instrument is to depress the Tongue, in order to examine the State of the Tonsils, Uvula, and Fauces, when they are affected with any Disorders; it is also used to elevate the Tongue, when the Frænum is to be divided; for which Purpose it has a Fissure at its Extremity, and should therefore be rather made of Silver than of any other Metal.

The following Spatulas also at Q. and R. resemble this. These are principally used in spreading Plaisters, Ointments, and Cataplasms; sometimes, with their sulcated Extremity, they are of Service in raising up fractur'd Bones of the Cranium.

In this Place also it will be proper to describe different sorts of Needles, strait and crooked, for stitching up of Wounds, taking up of Arteries, and many other Uses. Crooked ones, of different Sizes, are represented at S. T. V. X.

T A B L E XXIII.

From HEISTER.

- A. B. Scrap'd Lint, commonly call'd Pledgets.
- C. D. E. Dossils, which are composed of Lint, worked into the Shape of Olives, or Dactyle Stones.
- F. G. The same, with the Addition of a Thread ty'd round them.
- H. I. Larger Pledgets made of Tow.
- K. L. M. represents Tents of different Sizes made of Lint.
- N. A very large Tent, with a Thread annex'd to it.
- O. A conical Tent made of Linen.
- P. Q. R. S. T. V. X. Tubes or Canulas of different kinds, made of Silver or Lead.
- 1. 2. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 11. 11. different Forms of Plaisters.
- 12. 13. 13. 14. 15. 16. 17. 18. 19. Different sorts of Compresses, amongst which the Fig. 16. represents three Compresses laid across in the Form of an Asterisk.
- N. B. The Reference to this Figure, in the Original of Heister, is wrong. I observe, however, the English Translation exactly follows the Original, as to the Reference; but has made Nonsense of the Explication.
- 20. A Ball of Lint, which is sometimes us'd as a Compress.
- 21. A small square Compress.
- 22. 22. Several small slender Compresses.
- a. A simple Roller, not roll'd up.
- b. A one-headed Roller, which is roll'd up at one End.
- c. A double-headed Roller, which is roll'd up at both Ends.
- d. A four-headed Roller.
- e. A small Roller, particularly intended for the Security of Dressings, which are applied to one of the Fingers, or the Penis.
- f. The uniting Roller, which is perforated in the Middle.
- g. The Scapular Roller.
- h. Heliodorus's, or the T. Roller.

T A B L E XXIV.

From HEISTER.

- FIG. 1. A. describes how the grand Capital Roller is to be apply'd after the Operation of the Trepan, or after Wounds of the Head.
- B. The Belt, or Napkin, which is to surround the Body in Wounds of the Thorax or Abdomen.
- C. The Scapulary to support the Belt.
- D. The Method of making the Ligature after Bleeding in the Arm.
- E. The manner of tying up the Foot after Bleeding, which, from the Similitude it has with a Stirrup, is call'd by that Name.
- F. shews the spiral Manner in which the Roller ought to ascend, when it is applied to the Leg or Arm.
- G. A serpentine Roller, where the Convolutions are not so frequent.
- H. A large Wound in the Thigh, which requires the true Suture.
- I. K. The Part where the Tournequet is to be apply'd to the Arm, and the Manner of applying it.
- L. The Manner of applying the Tournequet to the upper Part of the Thigh; the Fillet, which is roll'd up, and apply'd as a Bolster, lies upon the Crural Artery at M.
- N. Shews how the Tournequet is to be apply'd to the lower Part of the Thigh, in which Case the roll'd Fillet is to be apply'd to the back Part of the Thigh.
- O. A large Wound of the Abdomen, with the Intestines falling out.
- FIG. 2. The common Tournequet, before it is apply'd.

FIG. 3. Crooked Forceps, furnish'd with Teeth at the End, call'd the Crane's-bill.

FIG. 4. A Pair of strait Forceps.

FIG. 5. The Duck's-bill Forceps, furnish'd with a moveable Ring, A.

FIG. 6. The Goose-bill Forceps.

FIG. 7. The Instrument invented by Bartholomæus Maggius, to extract Bullets which are fix'd in a bony Part.

FIG. 8. A Hook to extract Bullets.

FIG. 9. 10. 11. 12. 13. 14. 15. 16. Different sorts of Cauteries.

FIG. 17. Shews, in some measure, the manner of performing the Operation call'd Gastroraphy, or the Suture of the Abdomen.

a. a. Describe the Wound.

b. b. Two crooked Needles, with the Threads hanging to them.

c. c. c. c. c. Two Threads drawn thro' the Lips of the Wound, and clear'd from their Needles.

T A B L E XXV.

From HEISTER.

FIG. 1. Petit's triangular Needle, for making a Counter-opening in Wounds or Ulcers.

FIG. 2. Another crooked Needle, of Heister's Invention, which may be us'd in some Wounds and Ulcers, where the preceding is not so proper.

FIG. 3. Represents a Wound, the Lips of which are united by an adhesive Plaister on both Sides.

FIG. 4. Represents a Wound, to which two adhesive Plaisters are apply'd, with Indentations.

FIG. 5. A Wound of the like Nature, to which two adhesive Plaisters, without Indentations, are apply'd.

FIG. 6. Two Wounds crossing each other, A. A. A. A. and united by two Plaisters laid crossways, B. B. B. B.

FIG. 7. A. A. A Wound to which an adhesive Plaister is apply'd, with two Openings in the Middle, B. B.

FIG. 8. A Wound united by the Application of two Plaisters, with strong Threads fix'd to each of them, which are drawn together, and fasten'd with slip Knots, a. a. a.

FIG. 9. The same Wound, with Plaisters of the same kind, furnish'd with Hooks, a. a. a. a. a. a. instead of Threads, by which, with the Assistance of Threads fasten'd to them, the Lips of the Wound are drawn together.

FIG. 10. Represents in what manner, by the Assistance of the small Eyes, b. b. b. b. b. b. used instead of the Hooks in the preceding Figure, Plaisters of this kind may be form'd, and drawn, or, as it were, laid, together, as some of the Antients used to do.

FIG. 11. A transverse Wound, A. A. united by a double-knotted Suture, B. B.

FIG. 12. Shews in what manner a cross Wound is to be stitch'd up, and the Lips of it brought together, by drawing the Threads, A. B. C. D. tight.

FIG. 13. Represents how the Stitches are to be made in a triangular Wound, A. B. C.

FIG. 14. Represents how a Wound with two Angles is to be stitch'd with the knotted Suture, first at the Angles A. A. and then, if it is necessary, on each Side, at B. B.

FIG. 15. A large crooked Needle, with a double Thread, to make the quilled Suture.

A. The Needle.

B. The double Thread.

C. The bow End of the Thread.

FIG. 16. A large transverse Wound, A. A. united by a triple-knotted Suture, B. B. B.

FIG. 17. D. D. The same kind of Wound, which, besides the Threads at Fig. 16. is furnish'd also with small cylindrical Rolls of Silk, spread with some Wax or Plaister, A. A. and B. B. The Threads on the upper Lip of the Wound are ty'd in Slip-knots, C. C. C. whilst the Roll that lies on the under Lip is confin'd between the bow Ends of the Threads, E. E. E. This shews Palsyn's Method of making the quilled Suture.

FIG. 18. Shews another Method of making the quilled Suture in large Wounds, particularly in those of the Belly.

A. A. The Wound.

B. B. The upper Roll.

C. C. The lower Roll.

D. D. D. The fingle Knots which confine the upper Roll.

E. E. E. The Slip-knots which secure the lower Roll.

FIG. 19. Represents the Suture of Celsus, in which he used two Needles for stitching up transverse and penetrating Wounds of the Abdomen. The Method of performing it is directed in the sixteenth Chapter of his seventh Book. It is generally call'd the *Gastroraphia Celsi*, but is now disus'd, on account of its not answering the End so well as Sutures of another kind.

A. A. Represent the Beginning of the Suture.

B. Its End, where it is secur'd by a Knot.

FIG.

EXPLICATIONS of the TABLES in Volume the First.

FIG. 20. The Glover's Suture, used for uniting Wounds of the Intestines.

A. A. The Intestine.

B. B. The Wound.

C. The Beginning of the Suture, with Part of the Thread hanging out.

D. The End of the Suture, where it is fasten'd in a Knot.

N. B. The Knot is not represented in the Figure.

FIG. 21. and FIG. 22. The Suture for the Hair-lip, which is made with two or three Needles.

A. A. The Wound.

B. B. B. Needles passed thro' the Lips of the Wound.

C. C. C. The Thread twisted round the Needles.

T A B L E XXVI.

From HEISTER.

FIG. 1. Represents a blunt Iron Needle, to pass a fine Rag, or Skein of Silk, thro' gun-shot or other pervious Wounds, after the manner of a Seton.

FIG. 2. An Instrument to stop the Blood in Wounds of the large Arteries.

A. A. A Brass Plate, somewhat bent.

B. B. A strong Brass Screw.

C. A round Plate, of a Thumb's Breadth, to be fix'd upon the Wound.

D. The Handle by which the Screw is turn'd, and so presses the Plate C. strongly upon the Wound.

E. E. E. A strong Leather Belt to surround the wounded Part.

F. F. Part of the Belt pierc'd with several Holes, by which it may be fix'd upon the Hooks G. G. and lengthen'd or shorten'd, according to the Size of the Limb.

FIG. 3. A crooked Knife, with a round blunt Point, A. to enlarge Wounds of the Thorax or Abdomen, where such an Operation is requir'd.

FIG. 4. A straight Knife, with a Button on the Point.

FIG. 5. A crooked Knife, with a blunt Point.

FIG. 6. A Wooden Tourniquet of its proper Size.

A. A. The upper Part.

B. B. The lower Part.

C. The great Screw.

D. Two small Iron Screws, to which a Leather or Silk Belt is to be fix'd.

E. Hooks to fasten the other End of the Belt on, when it is brought round the Limb.

F. F. F. F. The Ends of the upper and lower Part of the Instrument hollow'd to receive the Belt, and to keep it steady in its Situation.

FIG. 7. Another kind of Tourniquet made of Iron; the Representation is less by half than the proper Size of the Instrument.

For the farther Explication of this and the above Figure, see the Article AMPUTATIO.

FIG. 8. A broad Roller, call'd the uniting Roller. This is perforated in the Middle, and rolls up with two Heads. It is used in treating Wounds of the Abdomen, which are made lengthways.

FIG. 9. A flexible Silver Tube, useful to discharge the Matter which is collected in Wounds of the Thorax, or in an Empyema.

A. The Openings at the Extremities, and on both Sides.

B. B. The Plate round it, with two Holes to pass a Thread thro'.

C. The Cavity which runs thro' the Tube A.

T A B L E XXVII.

From HEISTER.

FIG. 1. A Brass Tourniquet after Petit's Manner, but with some Alterations. The Use of this Instrument, and Method of applying it, will easily appear, upon comparing it with what we have said under the Article AMPUTATIO.

FIG. 2. A Handle to fix Needles in, when Sutures are to be made. See ACUTENACULUM.

FIG. 3. Another of the same Sort, from Garengnot.

N. B. These two are, by Mistake, represented also in Tab. 2. Fig. 36. and 37.

FIG. 4. Petit's Acutenaculum, or Handle for Needles.

FIG. 5. A Needle to perform Galltrophomy.

FIG. 6. Another of a larger Size.

FIG. 7. Another of a new Invention, to perform the same Operation.

FIG. 8. A Syringe for various Uses, furnish'd with Pipes of different Sorts: By the Help of this you may not only inject Fluids into Wounds of the Abdomen and Thorax, into the Fauces, into Abscesses, Ulcers, and into the Uterus; but you may also, by the Assistance of this Instrument, draw extravasated Blood from the Cavity of the Thorax, in which Case the Syringe should be twice as large; the Mouth of the Pipe, B. should be triangular, and about two Thumbs Breadth.

FIG. 9. Another Pipe with a round Mouth, intended for the same Uses.

FIG. 10. A smaller Pipe, which may be fasten'd to the Syringe, Fig. 8. for various Uses.

FIG. 11. Another somewhat curv'd, and perforated on both Sides: This will serve to suck Blood out of the Cavity of the Thorax, and to throw Injections into that Part, or into the Fauces.

FIG. 12. Another perforated at the End like a Cullender.

FIG. 13. Another like the former, but curv'd, to throw Injections into the Uterus, and for other Uses.

FIG. 14. An Iron Instrument, like an Ear-picker, or Probe, for various Uses.

T A B L E XXVIII.

From HEISTER.

FIG. 1. An artificial Eye, made of Glass or Silver: This may be introduc'd into the Orbit, and supply the Place of the natural Eye, and prevent the Deformity which will otherwise be the Consequence of the Loss of an Eye.

FIG. 2. An Awl, or sharp Instrument, to perforate the external Table of the Cranium.

FIG. 3. 4. 5. Different Forms of Rugines, or Rasping-chisels, to scrape the Cranium, or other Bones.

FIG. 6. Shews how the Depression of the Cranium in Infants may be elevated by sticking Plaisters.

FIG. 7. A. A quadrangular or pointed Steel Instrument, to perforate the external Table of the Cranium.

B. A Terebra.

C. An Elevator, to raise depressed Bones of the Cranium.

FIG. 8. Another Elevator, accommodated to the same Uses as the former.

FIG. 9. A small fine Saw; and Fig. 10. a small Rugine, which may be used with or without the Handle, represented in that at Fig. 3.

FIG. 11. A Wooden Mallet, the Head of which is fill'd with Lead.

FIG. 12. An Elevator with three Feet.

As the Elevatories at Fig. 7. and 8. are so contriv'd, that where the neighbouring Bones are depress'd or fractur'd, these Instruments cannot be applied without Danger of increasing the Complaint, it appear'd necessary to the Surgeons amongst the Antients to invent another Instrument for this Purpose, which might be apply'd with more Safety. This they call'd, from the Number of its Feet, *Tripes*. It is near twice as big as the Figure we have given. The Feet, A. A. A. may be placed at farther Distances, or brought nearer to each other, as you shall see Occasion. The Manner of applying it is this: The Feet of this Instrument are apply'd to the sound Parts of the Head, and the Screw, B. C. by frequently turning round its Handle, D. D. will presently lay hold of the depressed Part of the Cranium, especially if you have beforehand made a small Hole in the Middle of it with the Awl at Fig. 2. upon turning the Screw, E. E. the Terebra, at B. is raised by Degrees, and with it the depressed Part of the Cranium. You will conceive this more clearly by examining Fig. 13. but if any Opening shall appear between the fractur'd Parts of the Cranium, it will be better to take off the pointed End of the Instrument, and, in its room, fix on the Elevatory, G. by the Screw, H. at the Part about the Letter F. and, by the Assistance of this, the depressed Part may be rais'd.

FIG. 13. Describes the Method of applying this Instrument.

FIG. 14. This should be furnish'd with the Terebra, A. and the Hook, at Fig. 15. thro' either of which, according as you shall see necessary, the Lever, B. C. may be passed, after the Instrument is fix'd upon the depressed Part of the Cranium. The Plate, D. is to be plac'd upon the sound Part of the Head, laying Bolsters under it to prevent Pain; then, by raising the End of the Lever, at B. the depressed Part of the Cranium will be gently elevated, and restor'd to its natural Situation. You will observe a Joint at the Extremity of the Lever, C. to accommodate the Plate, D. by inclining it to the Convexity of the Head, in some Parts of it, which may be also raised or depressed by the Screw, E. If you please, you may make the Lever longer than it is represented here, which will add to its Force.

FIG. 15. The Hook belonging to this Elevator.

T A B L E XXIX.

From HEISTER.

FIG. 1. Is a Sort of long and sharp Forceps, proper to cut off the Splinters, or Fragments of Bones, which stick out; but to make them cut the easier, the Handles should be two or three Inches longer than the Figure.

FIG. 2. Is a simple Hook.

FIG. 3. Is a double Hook, serving for various Purposes in Surgery and Anatomy.

FIG. 4. Is a Needle for taking up Arteries, with a Ligature, in Hemorrhages, and many other Cases.

A. is

EXPLICATIONS of the TABLES in Volume the First.

- A. is its blunt Point.
B. its Eye, transmitting the Thread.
C. its little Head.

FIG. 5. is a Case to hold the subsequent Instrument, which is used to hold and apply the Lapis Infernalis, or Caustic-stone.

FIG. 6. The Instrument itself, made of Steel, for holding and conducting the said Stone.

a. The Nippers which lay hold of the Stone.

b. The little Ring, which shuts and holds them fast upon the Stone.

c. The other End of the Instrument, used in Chirurgical Sutures to support the Lips of Wounds.

FIG. 7. exhibits the Figure of a Splint, made of thin Wood, or PASTE-board, to be used in Fractures of the Arms and Feet: Its Breadth should be about three or four Fingers, and its Length suitable to the Size of the Limb.

FIG. 8. is a PASTE-board Splint, such as is sometimes used in Fractures of the Nose: Its Size is to correspond to that of the Nose.

FIG. 9. is a Splint of Paper, suited to the lower Jaw, when fractured only on one Side.

FIG. 10. is a double Splint of the same Kind, for the lower Jaw, when fractured on both Sides: It is to be applied so, that the Aperture a. in the Middle, may let in the Chin; but its two Extremities or Wings b. b. which may be folded together in the Middle a. are to be applied towards the Ears.

FIG. 11. is a Compress, in form of an X. to be used in Fractures of the Clavicle.

FIG. 12. is a PASTE-board Splint, to be laid over the former Compress, in the same Fracture.

FIG. 13. is an Iron or Steel Instrument in the Form of a T. useful to retain the Shoulders in a proper Posture, in Fractures of the Clavicle.

A. A. its transverse Part, to which are fasten'd Iron Rings, to retain and keep back the Shoulders.

B. its perpendicular Part, going down to the Back.

C. An Aperture in its lower End, by which it is to be fasten'd with a Ligature round the Waist, to be tied before on the Belly.

FIG. 14. is a PASTE-board Case, in which a fractured Arm is to be lodged, after it has been set and dress'd: Its Size is to be answerable to the Arm.

FIG. 15. is a Polyspaston, or compound Pulley, used to extend fractured Bones.

A. and B. are two Hooks, by which the Instrument is fasten'd at both Ends.

C. The Rope, by drawing which an Extension is made of the broken Limb.

D. and E. are two Pullies, consisting of several Wheels, by which the Force is very much increased.

FIG. 16. is a strong Iron Screw, whose Worm or Thread, B. is to be forced by the two Handles into some Beam or Rafter; and upon its Ring A. the Pulley E. is to be fix'd, as before said.

FIG. 17. is the Belt of *Hildanus*, sometimes necessary to make Extensions of the Bones of the Arms and Feet.

A. A. Two Hooks, upon which is hung the Sling or Rope B. B.

C. The Place where the extending Force is to be applied.

TABLE XXX.

From HEISTER.

FIG. 1. is a Compress, call'd, by the *French*, *Compress graduée*, to be applied in Fractures of the Thigh, to make its small and inferior Part of the same Thickness with its other, that the Splints may more equally embrace it, and retain it in its proper Situation.

FIG. 2. Two lunar Plaisters, to include and hold firm the fractured Patella, after it has been set.

FIG. 3. A perforated Plaster for the same Use.

FIG. 4. Is a Fracture of the Leg, with an external Wound A. to be bound up with the Roller of eighteen Heads B. B. B. B. which commodious kind of Roller seems to have been unknown to the Antients.

FIG. 5. Is a Straw Couch or Case for a broken Thigh, called by the *French* *Fanon*. A. A. A. A. represent two Sticks cover'd with Straw, bound on with strong Packthread; to both Sides of these is also fasten'd a strong Cloth B. B. of about two Foot broad, and three long. This Couch is usually made twice the Length of the Thigh, so as to reach from the Groin and Os Ilium, to the End of the Foot.

FIG. 6. Is a Sole of thick PASTE-board, or Wood, fitted to the Size of the Patient's Foot: it is to be applied to the Bottom of the fractured Foot, and bound on by the three Tapers a. a. a. to retain or stay the Foot in its proper Posture, whence *Celsus* calls it *Mora*.

FIG. 7. Is a quilted Compress to be applied between the

Foot and the Stay, to be soft, and defend it from any rough Action of the PASTE-board or Wood.

FIG. 8. Is a soft Linen Ring join'd to the foregoing Compress to let in, and hold the Heel; it is to be fasten'd to the Foot by the two Strings b. b.

FIG. 9. Is a brass Trunk for securely retaining a broken Leg; it consists of three Parts, A. B. C. which are join'd by the Hinges 1. 2. 3. 4. 5. 6. The middle Part B. is the Basis of the Machine, which like an hollow Pipe, receives the bound up Limb: the outer Parts A. C. are as moveable Sides or Wings, which may be turn'd back, or folded together: To each of these Sides A. C. are join'd three almost square Loops E. E. through which are passed Strings to draw them tight together, and keep them firm upon the fractured Leg. Its Size must agree with the Leg.

FIG. 10. Is a wooden Arch to put over a broken Leg, to keep it from being incommoded by the Bed Cloths.

FIG. 11. and FIG. 12. A very useful and proper Machine, or wooden Case, or Box, for retaining Fractures of the Leg, contriv'd and describ'd by *Petit*, a celebrated Surgeon of *Paris*, first in the *Memoirs of the Royal Academy of Sciences* for the Year 1718. and afterwards in his *Treatise of Diseases of the Bones*, from whence *Garengot* transferr'd it into his *Account of Chirurgical Instruments*: We chuse to exhibit the Machine rather from the *Memoirs of the Academy*, than from the *Inventor's Book on the Bones*, or *Garengot's of Instruments*; because, in the two latter, the Instrument is represented entire only, and with less Perspicuity. I shall, therefore, give it entire in *Fig. 11.* and then separated into its component Parts at *Fig. 12.*

The Basis, or principal Part of the Machine, A. A. A. *Fig. 12.* is to be gently put under the broken Leg, (after it has been first set, the Wound properly dress'd, the Whole bound up with the Roller of eighteen Heads, and defended with Splints, tied on with three Strings, as is usual) the two lateral Parts of the Case B. B. B. B. and its Front C. which serves as a Sole to the Foot, are fasten'd together by the Hinges D. D. D. D. and kept shut by the Hooks E. E. as may be seen at *Fig. 11.* by which means the Foot cannot slide or move, but is held firm, and easy to the Patient.

F. F. is the lower Part or Foot of the Machine, serving as a Foundation to the rest; at its End, G. G. it is joined by Hinges to the Part on which the Leg is to lie. N. B. The Engraver, has by Mistake, put *one* instead of *an* F. In the anterior Part there is a moveable wooden Fulcrum H. fix'd to the superior Part I. by the moveable Pins I. I. But the other Extremity of this Fulcrum at K. is moved backwards or forwards into the Notches or Sulci at L. L. and by this means the Machine, together with the Leg, is elevated or lower'd at pleasure. The superior Part A. A. is to be lined with strong Girdling and Linen, which are to be nailed tight to the Sides, upon which the Limb rests more easy than upon the Plank or Board. The other Parts of this Case seeming to be obvious from the Figure, we shall, for Brevity, omit any Explication of them, and only observe, its Size is to agree with that of the Limb.

But, by reason of the vast Numbers of Fractures which happen in a War, and the great Scarcity and Cumberfomeness of these Machines at such Times, the Camp-surgeons are generally obliged to substitute Cases of Straw in the room of them. At every Dressing of the Limb, the Hooks E. E. are to be undone, and the three Sides open'd; but when the Wound and Fracture are dress'd, and bound up, the Foot must be exactly placed, and the Case fasten'd as before.

FIG. 13. is a Compress folded at one End, to fill up the Small of the Leg, that the Splints may compress the more equally and firmly.

TABLE XXXI.

From HEISTER.

FIG. 1. is a Sling which may be used to make an Extension in Luxations of the Head.

FIG. 2. is another Sling, to retain the Patient's Body firm in the same Case.

FIG. 3. shews the most commodious Method of reducing a recent Luxation of the Humerus.

A. is the Patient, seated ready to undergo the Operation.

B. is the Assistant that holds the Patient firm in his Seat.

C. is the Assistant that distends the dislocated Humerus.

D. The Surgeon, reducing the dislocated Humerus.

E. A Napkin, whereby the Surgeon elevates the Arm, in order to its Reduction.

FIG. 4. Is a Machine commonly called the *Ambe of Hippocrates*, used formerly to reduce Luxations of the Humerus. It consists of the Fulcrum A. A. to which is fasten'd the moveable Lever B. C. join'd to each other by a Sort of moveable Articulation D. See this under the Article *AMBU*.

FIG. 5. Shews how the former Instrument is to be applied to a Luxation of the Humerus. There is some Difference between

EXPLICATIONS of the TABLES in Volume the First.

between the Structure of this and the former, at the Joint C. D. some think this is preferable to the other.

A. A. Is the Fulcrum.

B. C. The Lever, to which the luxated Arm is fasten'd by the three Ligatures E. E. E.

D. The Place where the Fulcrum and Lever are fasten'd together by a moveable Joint. When the End of the Lever B. is pressed downwards, the luxated Arm is extended, and elevated near its Scapula.

FIG. 6. Is *Petit's* Machine for reducing Luxations of the Humerus, and several other Luxations.

a. a. Are two Arms or Horns, by which the Patient, and particularly his Scapula, is held firm, from giving way in the Extension.

B. The other End of it, resting upon the Ground or Floor.

C. C. C. C. Pullies of the Machine.

d. d. d. The Rope, by winding up which, an Extension is made.

E. The Handle, which, being turn'd round, draws the Rope tight, and extends the Limb.

F. F. The Place where the two Horns are join'd to the Body of the Machine.

FIG. 7. Is a *Retinaculum* or Supporter, to be used in a Luxation of the Humerus.

A. An Opening or Slit in the Machine.

B. C. The Form of it at each End.

D. D. Two Apertures, thro' which the two Legs or Horns

a. a. of the Instrument represented by *Fig. 6.* are to be passed.

FIG. 8. Is a particular Sling of *Mr. Petit's*, proper for extending luxated Limbs.

A. A. The Part made of Leather.

b. b. b. b. b. A Silk Ligature, sew'd to the Leather in three Places at 1. 2. 3. The Part A. A. is fasten'd round the Arm.

c. d. e. Is a strong Loop fasten'd to the Silk Ligature at f. f. so as to be moveable.

FIG. 9. Is an Instrument recommended by *Petit* for the Reduction of a luxated Femur, when dislocated inward. It is to be fasten'd at F. F. in the Machine, represented by *Fig. 6.* instead of the two Arms a. a.

A. Is apply'd to the Os Ilium.

B. To the middle of the Thigh; but C. C. are fixed into the Machine represented by *Fig. 6.* at F. F.

T A B L E XXXII.

From HEISTER.

FIG. 1. Represents an Arm in which a Vein is to be open'd.

A. Denotes the Cephalic Vein.

B. The Basilic.

C. The Median Vein.

D. The Ligature fixed above the Elbow to make the Veins swell.

FIG. 2. Represents the several Forms of cutting a Vein with the Lancet.

A. Shews a longitudinal Incision.

B. A transverse one.

C. D. Oblique ones.

FIG. 3. Exhibits the ancient *German* Phlebotome or Fleam for opening a Vein.

A. The sharp Point to be fixed on the Vein.

B. The Handle to be held in one Hand, while the Part C. is to be struck by a Pillip of the Finger of the other Hand, so as to drive the Point A. into the Vein.

FIG. 4. Is a Spring Fleam, now in Use with some.

A. This Part being apply'd to the Vein, and the Part C. being elevated, depresses the Spring by the End B. which, by its Reaction or Elasticity, strikes the End C. upon the Fleam A. so as to drive it into the Vein.

D. D. Is a hollow Case of Brass or Silver, in which the Spring Part of the Instrument B. is included.

FIG. 5. Represents the Instrument used in Venesection, commonly called a Lancet, so bended into an obtuse Angle at the Joining A. as that it may be commodiously held for performing the Operation for which it is intended.

FIG. 6. Represents a certain Arm A. B. at the Bending of whose Elbow *Purmannus* found the terrible Aneurysm C. C. as large as one's Head.

FIG. 7. Shews the manner of applying the Ligatures above and below an Aneurysm, in the Operation for that Disorder.

A. B. The Artery.

C. The Aneurysm.

D. The upper Ligature.

E. The lower Ligature.

FIG. 8. Represents an Instrument design'd not only for preventing, but curing Aneurysms of the smaller Kind.

A. A. A. The Plate of Iron adapted to the Flexure of the Arm.

B. Its Fissure.

C. C. D. D. Cords or small Ligatures of Silk fix'd to the Plate at A. A. and extended to D. D.

E. Denotes a moveable Iron Lamina, join'd to the Plate by the Hinge I, and cover'd with a Cushion of Cotton or Silk, of a convex Form at F. which is to be apply'd to the Aneurysm.

G. G. Two small Hooks by which the Instrument is fix'd on the Arm, by means of the Cords C. C. D. D.

H. A Screw by which the Plate and Cushion E. F. are screw'd down upon the Tumor, that so the Aneurysm may be depressed, and the affected Artery strengthen'd.

FIG. 9. Represents an Instrument of the same Kind with the former, somewhat varied in its Figure, and with a larger Plate and Cushion E. F. and consequently accommodated to the Cure of larger Aneurysms. Almost the whole Machine is cover'd with Leather, but more particularly the inferior Part of the Plate E. is cover'd with Cotton and Leather. The Cords also C. D. are made of Leather, whereas in the former Instrument they were made of Silk. The other Letters denote the Parts represented by the same Letters in the former Figure.

FIG. 10. Shews the Apparatus, with a Bladder and Tube for Injection of Liquors into the Veins.

A. The Bladder and Tube.

B. A Vein of the Arm open'd, in which the Tube is inserted.

FIG. 11. Represents the Method used by some Physicians of the preceding Age, for conveying the Blood from one Man's Arm represented by A. to that of another exhibited by B.

FIG. 12. In some measure represents the manner in which a like Conveyance or Transfusion is made from one Hand to another.

FIG. 13. Shews the Transfusion of Blood from the crural Artery or Vein of an Animal into the Arm of a Man, by the Intervention of the Tube A.

T A B L E XXXIII.

From HEISTER.

FIG. 1. Represents the Cupping-glass, used at present in *Germany*, and elsewhere, for dry Cupping, or for extracting Blood after Scarification.

FIG. 2. Is the Instrument or Scarificator, commonly used by the *German* Cuppers.

A. The Handle.

B. The Edge.

C. The Part which is struck extremely quick by the Finger, so as to make the Edge wound the Skin as often as they incline.

FIG. 3. Represents the Order or Position of the little Incisions made in the Skin by the Cupper, that they may all be entirely cover'd by the Cupping-glass, represented by *Fig. 1.*

FIG. 4. Exhibits the modern cubical Scarificator, making sixteen Incisions in the Order of *Fig. 3.* by one Stroke upon the Skin, and with very little Pain.

FIG. 5. Exhibits the Shape of a Leech, for the Information of such as may be ignorant of that Insect.

A. The Mouth or Head by which it bites.

B. The Body and posterior Parts; but it must be observ'd, that one and the same Leech may, by differently contracting and expanding itself, appear in a hundred Shapes, so that its Length and Thickness are very uncertain.

FIG. 6. Is the Needle used by the Inhabitants of *China* and *Japan*, for making their Acupuncture.

A. The Handle.

B. The Point which enters the Flesh.

FIG. 7. Is the little Hammer used by the *Indians* to strike the preceding Needle.

A. The Head of this Hammer.

B. Its Handle.

C. C. A Case in the latter to deposit the Needle in.

FIG. 8. Represents the actual and concealed Cautery, used formerly for making of Issues, and is by some denominated *Capsula Casserianna*.

A. Denotes the End of the actual Cautery, or red-hot Iron, protruding itself beyond the Case.

B. B. B. Is the wooden Case concealing the red-hot Iron from terrifying the Patient.

C. The Handle, by depressing which the Cautery is forc'd into the Skin.

FIG. 9. Is a Machine to be used as a Bandage for Issues in the Arm, and to be made a little longer for those in the Neck or Foot.

A. A. Is a leathorn Swath of about two or three Fingers Breadth.

B. A small Hook made of Brass or Copper.

C. Is a Brass Plate with several oblong and transverse Apertures, for receiving the Hook B. in the manner of a Clasp, in order to fix the Swath on the Foot, Neck, or Arm.

FIG.

EXPLICATIONS of the TABLES in Volume the First.

FIG. 10. Represents the small Syphon or Syringe proper for injecting Liquors into the Urethra of Males, and the Vagina of Females, for the Cure of Wounds and Ulcers.

A. A. The Body of the Syringe.

B. Its Extremity, ending with an obtuse Point instead of a small Tube, to prevent the injected Liquor from regurgitating.

C. The Ring or Handle of the Sucker, by which the Liquor is drawn into, and forced out of, the Cylindric Body.

FIG. 11. The Letters A. A. exhibit those Parts in the Soles of the Feet, which the *Italian Physician Miftichellius* directs to be cauteriz'd in Apoplexies.

B. The square Iron Cautery for the Operation, which in that Disorder, he says, is highly serviceable.

FIG. 12. Represents the Method of burning the Part affected in the Gout with the *Indian Moxa*.

A. denotes the Cone of Moxa not yet fired.

B. One that is burning.

FIG. 13. *a. b.* Give a View of several encysted Tumors.

c. d. Scirrhus Glands in the Neck.

e. A fleshy Excrescence or Mark from the Mother.

FIG. 14. Represents the small Knife, which I generally use for extirpating scirrhus Tumors, or Glands in the Neck, Wens, or even scirrhus Glands of the Breasts.

FIG. 15. Represents the Hand of an Infant with six Fingers, in which

A. Denotes the superfluous Finger with a Nail like a Cock's Spur, which I took off by a Pair of amputating Scissors or Pincers; which Instrument I also use in a Spina Ventosa, or Caries of the Fingers.

FIG. 16. Is a Hand with the whole Index A. carious and ulcerated, which I amputated close to the Metacarpus, with the Knife represented by FIG. 14. but then I also removed the Head of the first Phalanx, that the Wound might heal the sooner.

B. Denotes a Spina Ventosa in the middle Finger, and in the second Internode, which I amputated in the first Bone, or Phalanx.

C. Is a large Excrescence or Protuberance at the End of the little Finger from the same Disorder, which I successfully amputated in the second Bone, by the Mallet and Chisel.

FIG. 17. Shews the Method of amputating the great Toe with the Mallet and Chisel, used by *Roonhuijs*.

T A B L E XXXIV.

From HEISTER.

FIG. 1. Exhibits a small-sized Knife, more commodious for dividing the Skin and Flesh in Amputations, than the large crooked one following.

FIG. 2. Is the large Crooked Knife, commonly used for dividing the Flesh to the Bone in Amputations of the upper and lower Extremities; though, in most Cases, I prefer the small one, represented by Fig. 1.

FIG. 3. The double-edged Knife for dividing the Flesh and Ligament betwixt the Bones of the Arm and Leg, which may be also performed by a less and single-edged Knife like that in Tab. 22. Letter G. This Knife is also used in the Method of amputating the Leg, when the Calf is to be preserv'd.

FIG. 4. Represents the Saw used for amputating Bones of the Limbs. This Instrument is by many delineated as large again as our Figure of it; but a Saw of the same Size, or but little larger than our Figure, will perform the Operation as well, and even more commodiously, than a larger. This, and the two preceding Instruments, are usually embellished with various Ornaments, which may serve to encumber them, and enhance their Price, but can add nothing at all to their Usefulness.

FIG. 5. Represents a Pair of Pliers, furnished with Teeth at one End, and a Spring at the other, for taking hold of the Ends of divided Arteries, in order to secure them by Ligature with strong Thread, and stop their bleeding in Amputations of the upper and lower Extremities.

FIG. 6. Is another Pair of Pliers for the same Use, taken from Mr. *Garengeot*; which may be also made with very flat or no Teeth at the End, to avoid injuring the Coats of the Artery.

T A B L E XXXV.

From HEISTER.

FIG. 1. Shews the Manner in which the Patient, Surgeon, and Assistants are to be placed, for amputating the Hand or Arm.

A. Denotes the Patient.

B. The Surgeon amputating with the Saw.

C. The Assistant extending the Hand.

D. Another Assistant holding the Arm.

E. The Assistant who holds the Patient's Body, and takes Care of the Tourniquet.

F. Denotes the Dish or Vessel placed underneath to receive the Blood.

FIG. 2. Represents the Position of the Patient, Surgeon, and his Assistants, in amputating the Leg.

A. Denotes the Patient seated in a Chair.

B. The Surgeon.

C. The Assistant who holds the Foot below the Calf.

D. The Assistant who holds the Leg above the Knee.

E. A Vessel placed on the Floor, to catch what little Blood may be spilt in the Operation.

Fig. 3. A. denotes the most convenient Part for amputating the Leg; and

B. That most proper for amputating the Thigh. But when the Disorder has extended itself higher up in the Thigh, it must be amputated proportionably above this Mark, though the Operation is then so much the more dangerous.

FIG. 4. A. Represents the Thigh, with the Leg, B. amputated. In the Thigh may be seen the Part for fixing the Tourniquet C. D. The Tourniquet, thus apply'd, may serve for amputating the Tarsus or Metatarsus; as also for amputating the Leg, though not so conveniently. In this Figure you have also a View of the divided Artery extended a little by the Pliers E. and about to be secured by the Ligature and Knot F. Some indeed do not approve of this manner of tying the Ligature; but I have often experienced, that it answers very well.

FIG. 5. Describes the Manner of amputating the Leg, so as to preserve the Calf.

The Line A. B. denotes the first Incision to be made by the Knife in Tab. 34. by Fig. 1. or Fig. 3.

The Line B. C. is the Course of the second Incision, by which the Flesh of the Calf is separated from the Bones of the Leg.

C. D. The Place where the rest of the Flesh being remov'd, the Amputation is to be perform'd. Some reverse this Course of Incision, and first perforate the Calf with a double-edged Knife, Tab. 34. Fig. 3. at C. and then they direct the Knife in the Course B. A. but the former Method is, in my Opinion, more eligible.

FIG. 6. A. Represents the Manner of turning back the Calf of the Leg towards the Ham, after it has been separated from the Bones of the Leg by a double Incision; which done, the Surgeon next cuts the Integuments, Flesh, and Periosteum, in the Line B. and then saws off the Bones there.

FIG. 7. Denotes a Leg just amputated, with the Calf A. hanging down, to see the Ends of the two Bones.

B. The Extremity of the Os Tibiæ.

C. The Extremity of the Os Fibulæ.

FIG. 8. Shews the Leg thus amputated, with

A. The Calf brought over, and joining to the Stump.

B.

C. Denotes Part of the Thigh.

FIG. 9. Represents the Method of applying the Screw Tourniquet (Tab. 26. Fig. 6. or Tab. 27. Fig. 1.) above the Knee, for amputating the Leg.

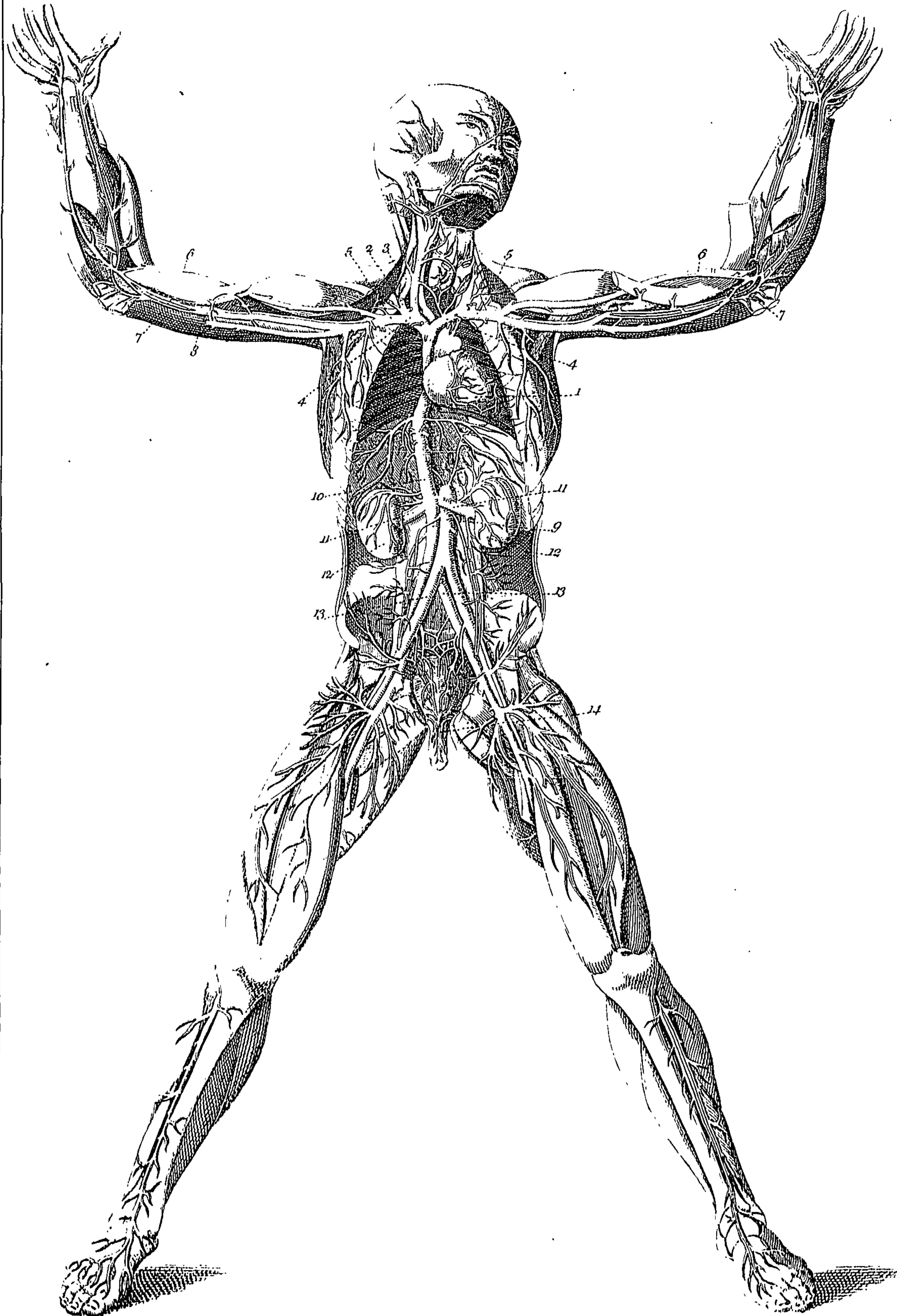
C. C. The Tourniquet, with its subjacent Pillow.

D. The Place where the leathern or silken Strop E. E. is fastened by Studs on one Side, and by two small Hooks, F. on the other Side.

G. The Screw, by turning which the subjacent Artery is compressed in the Ham.

FIG. 10. Is a large crooked Needle for making a Ligature on the Brachial Artery, before the Arm is amputated in its Articulation with the Scapula, though the same may be also performed by the straight Needle, Tab. 39. Fig. 12. either of which Needles will also serve for making setons in the Neck.

Table IV.



J. Wandelaar sculp.

Table V.

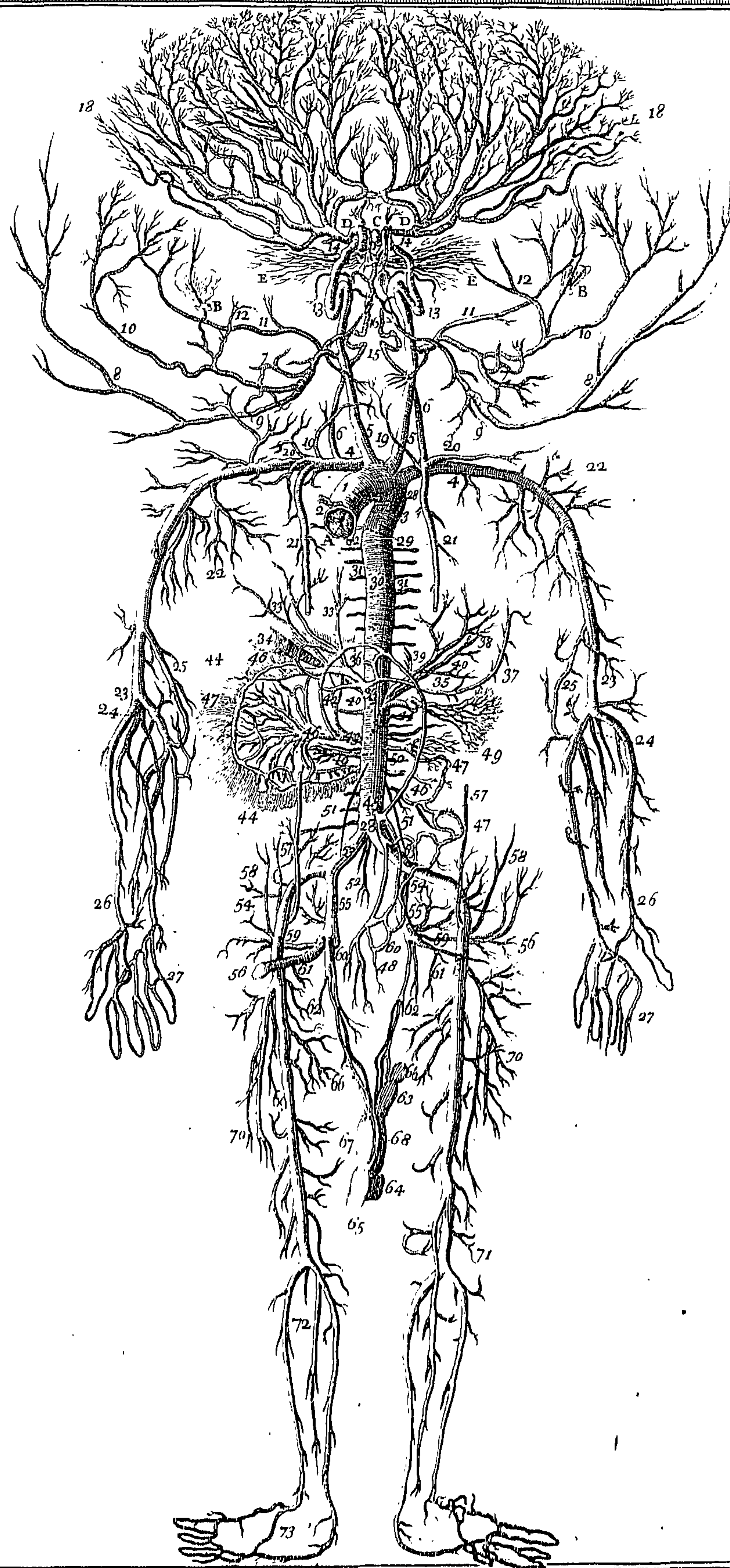


Table VI.

Fig. 1.

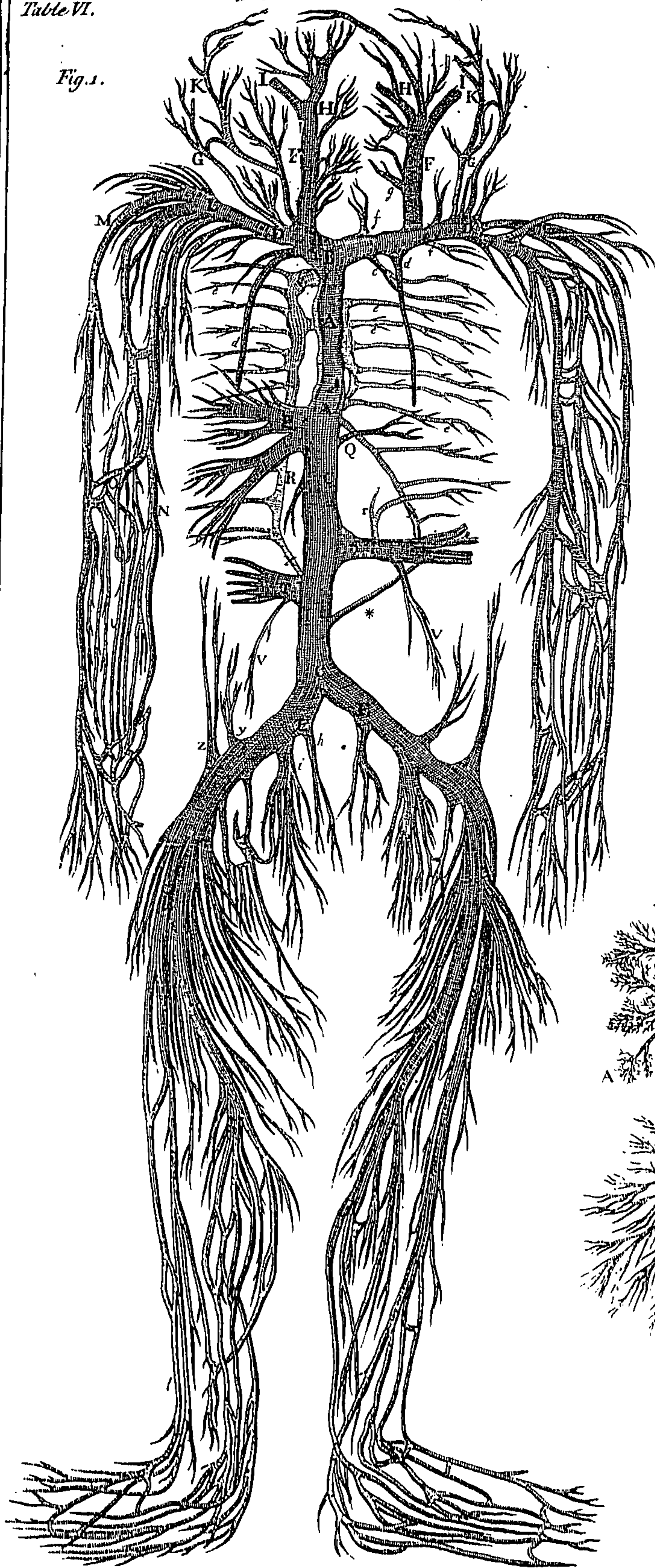
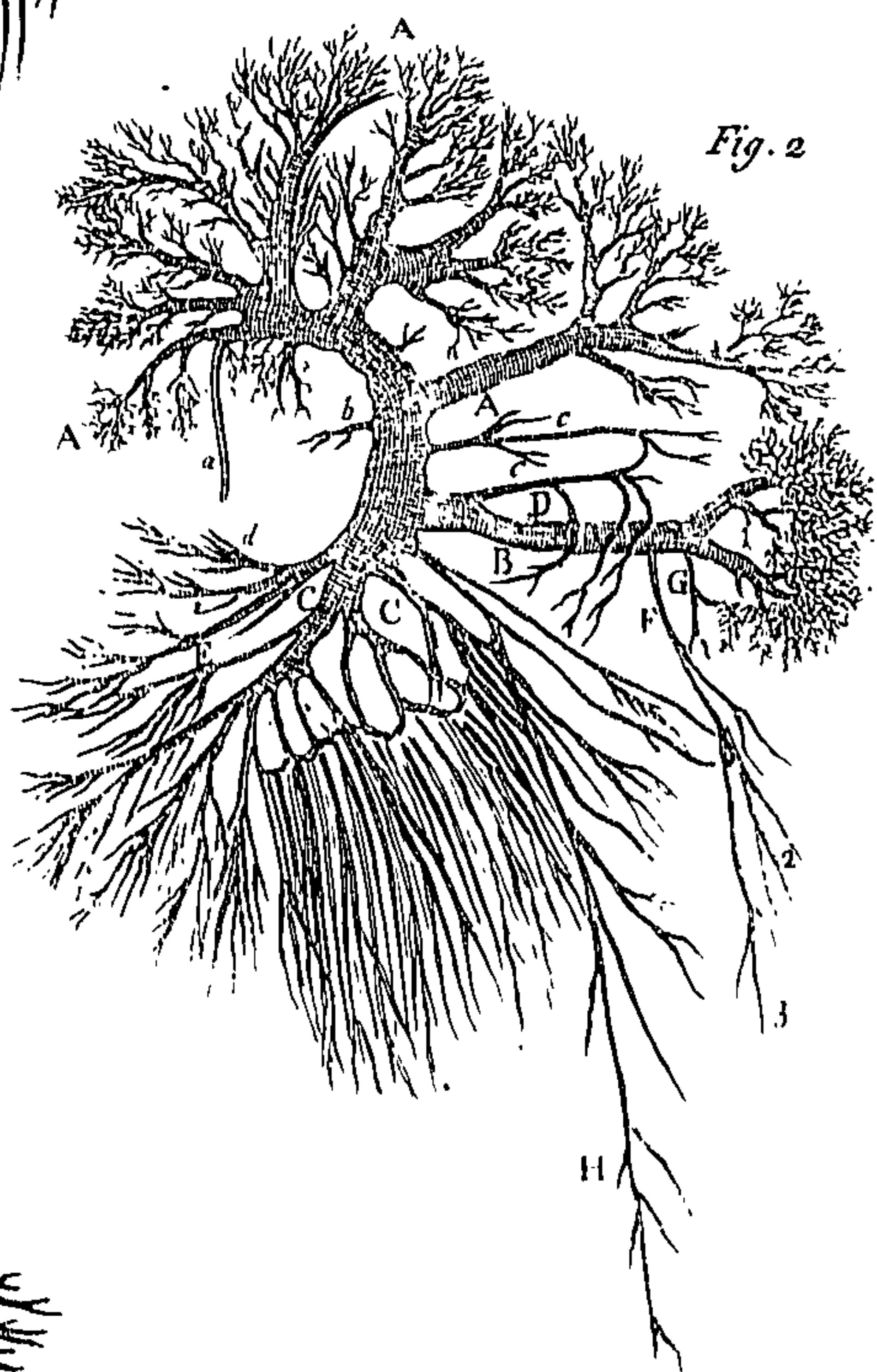


Fig. 2



I. Bay/lov, Nepal.

Table VII

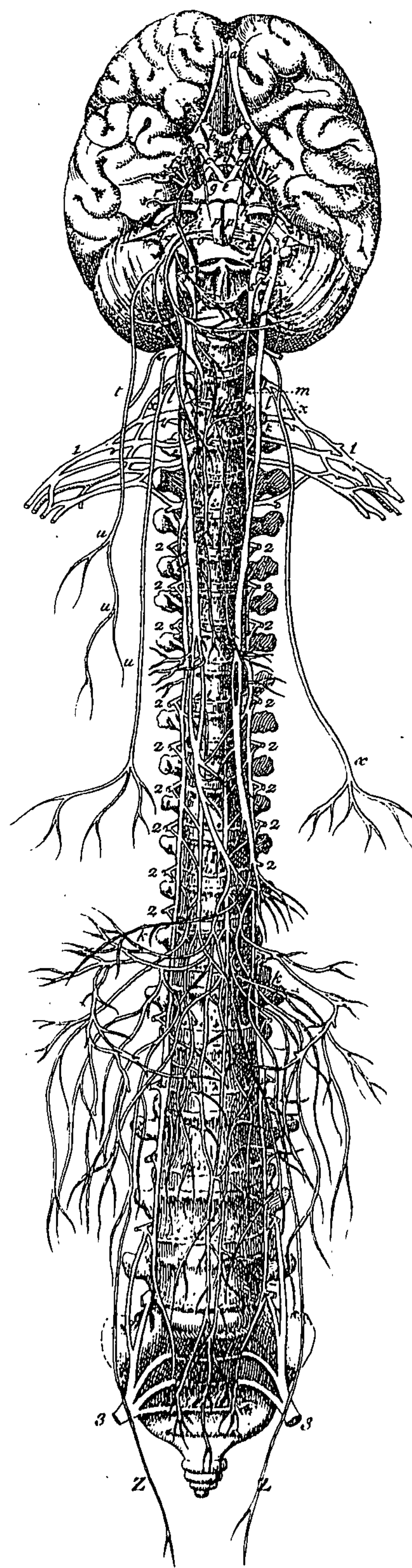


Table VIII.

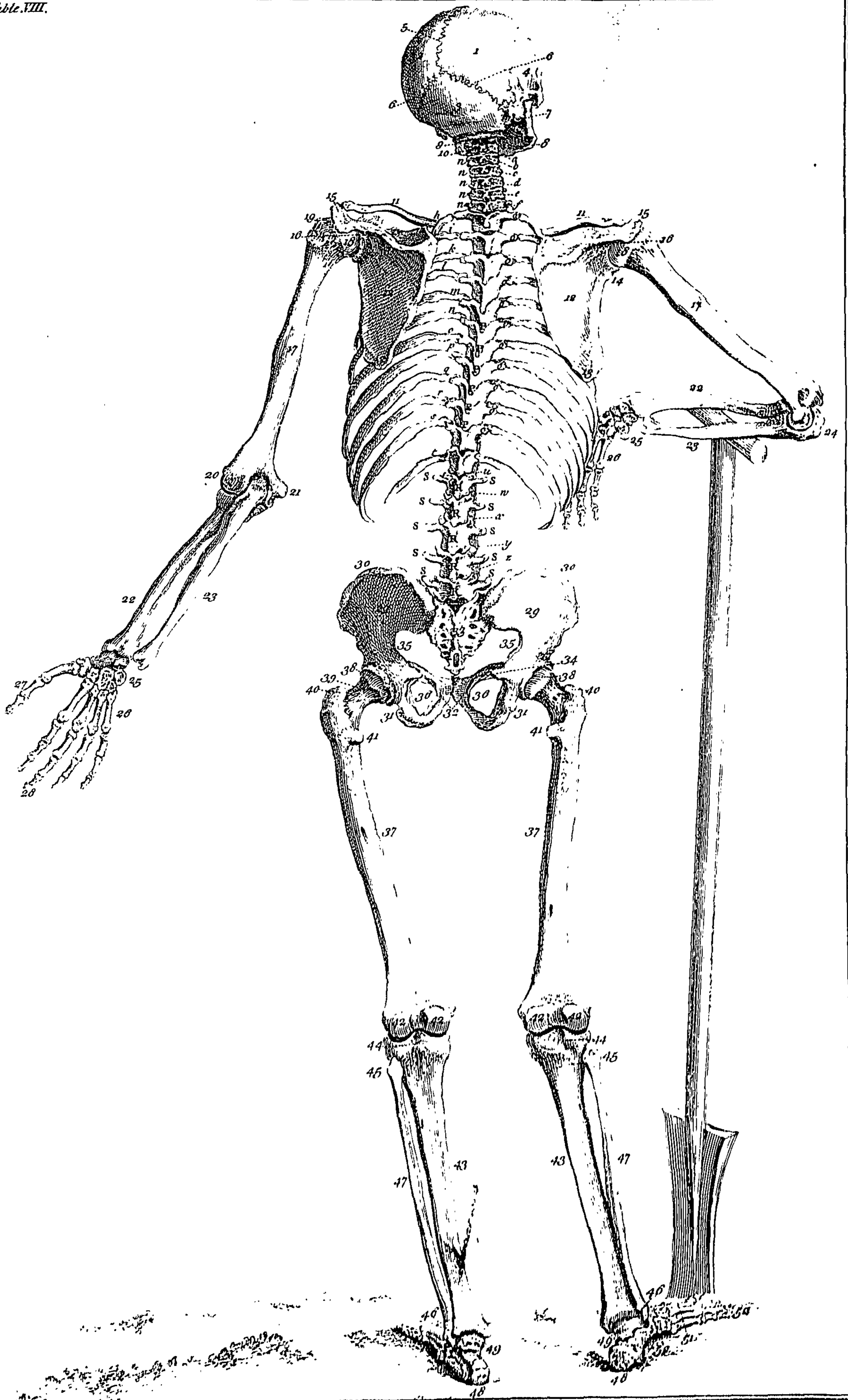
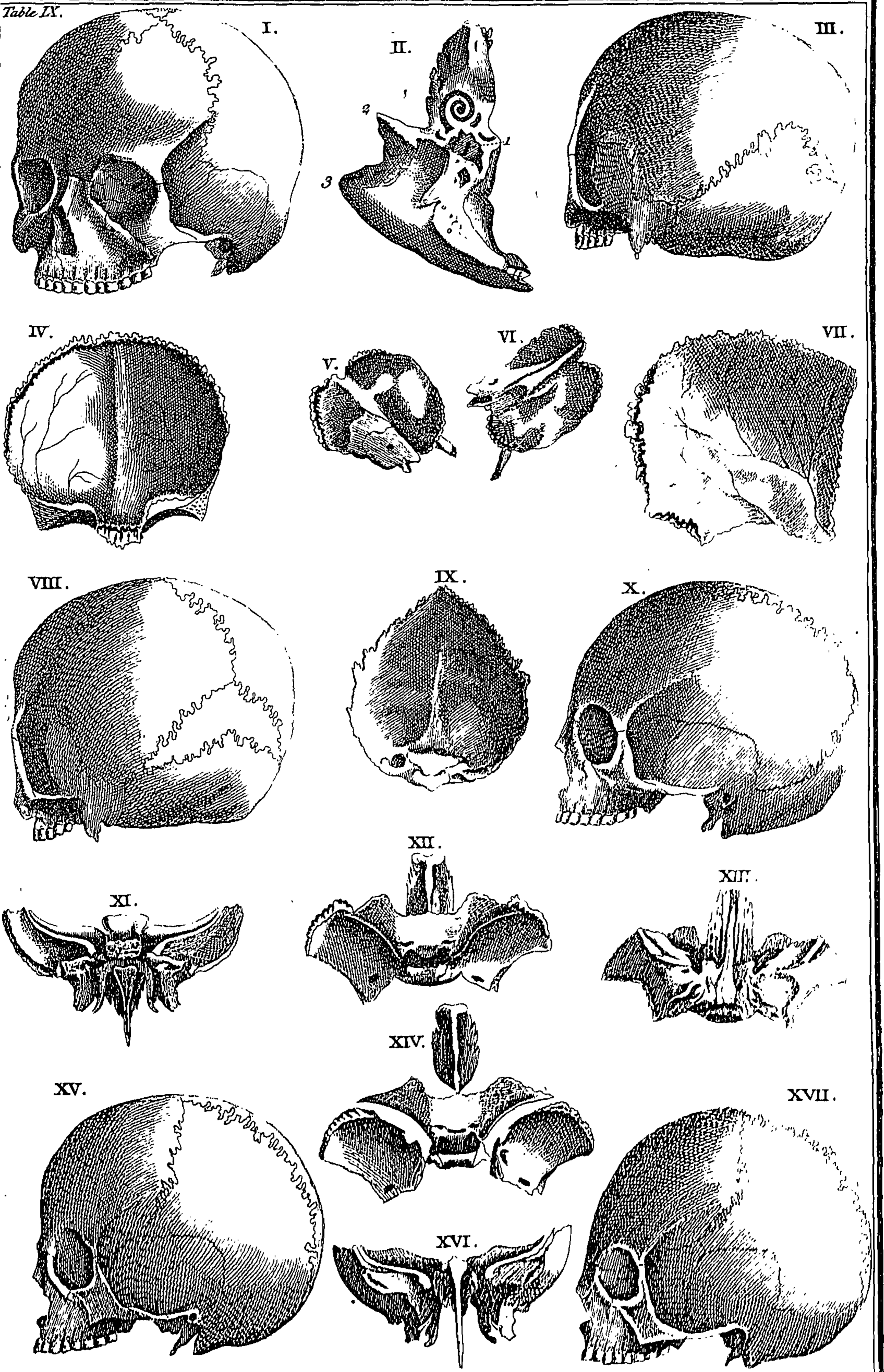
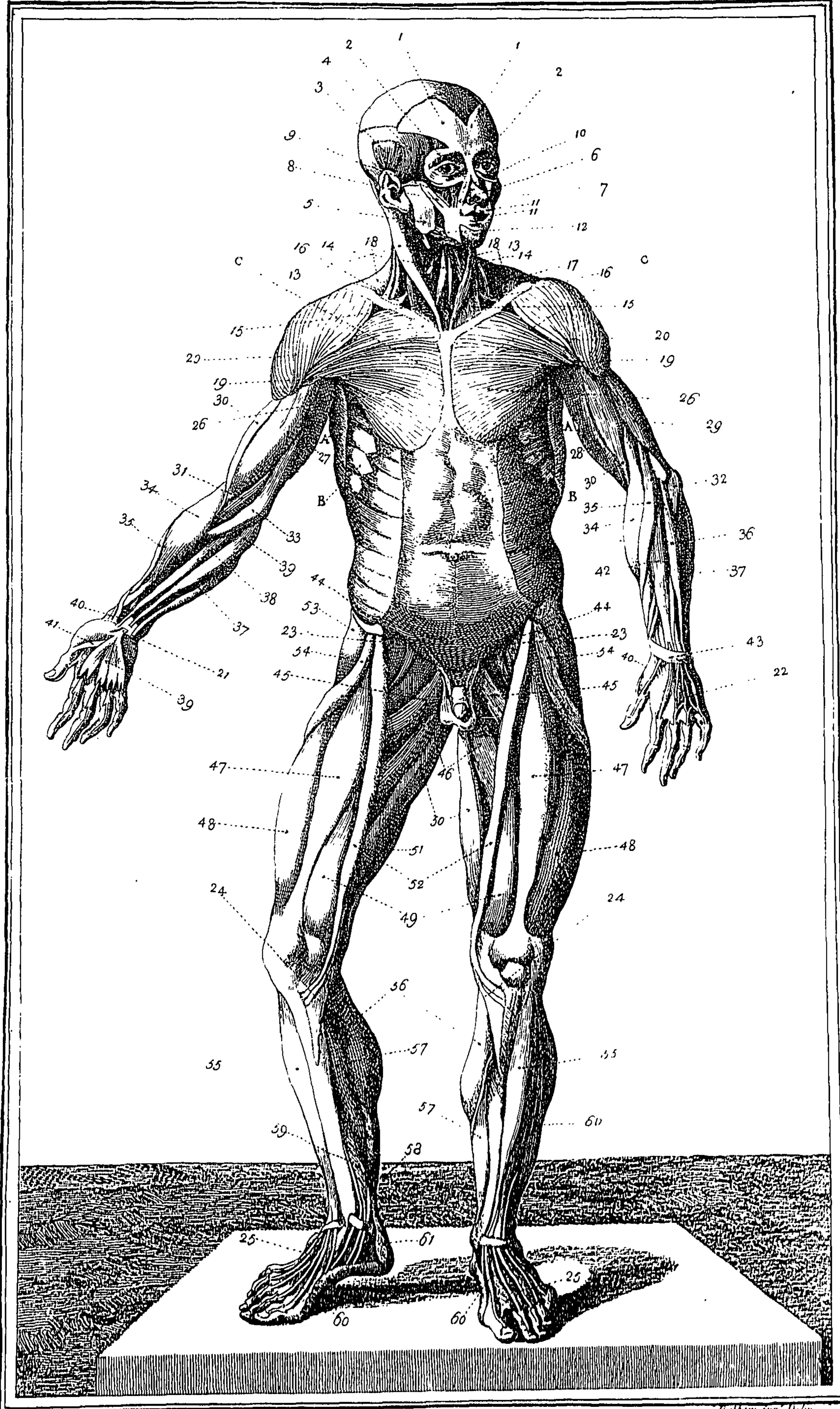


Table IX.





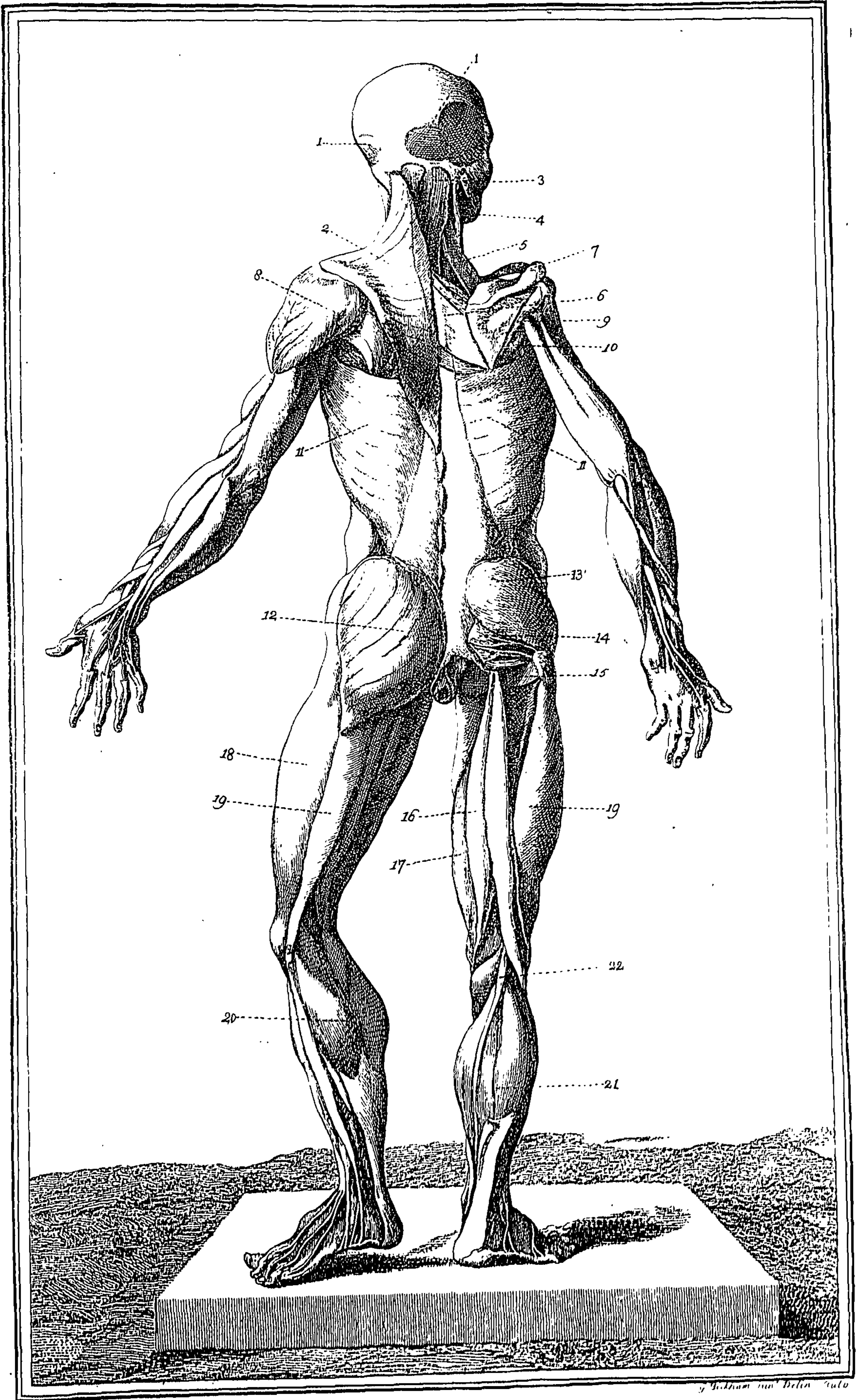


Fig. 1.

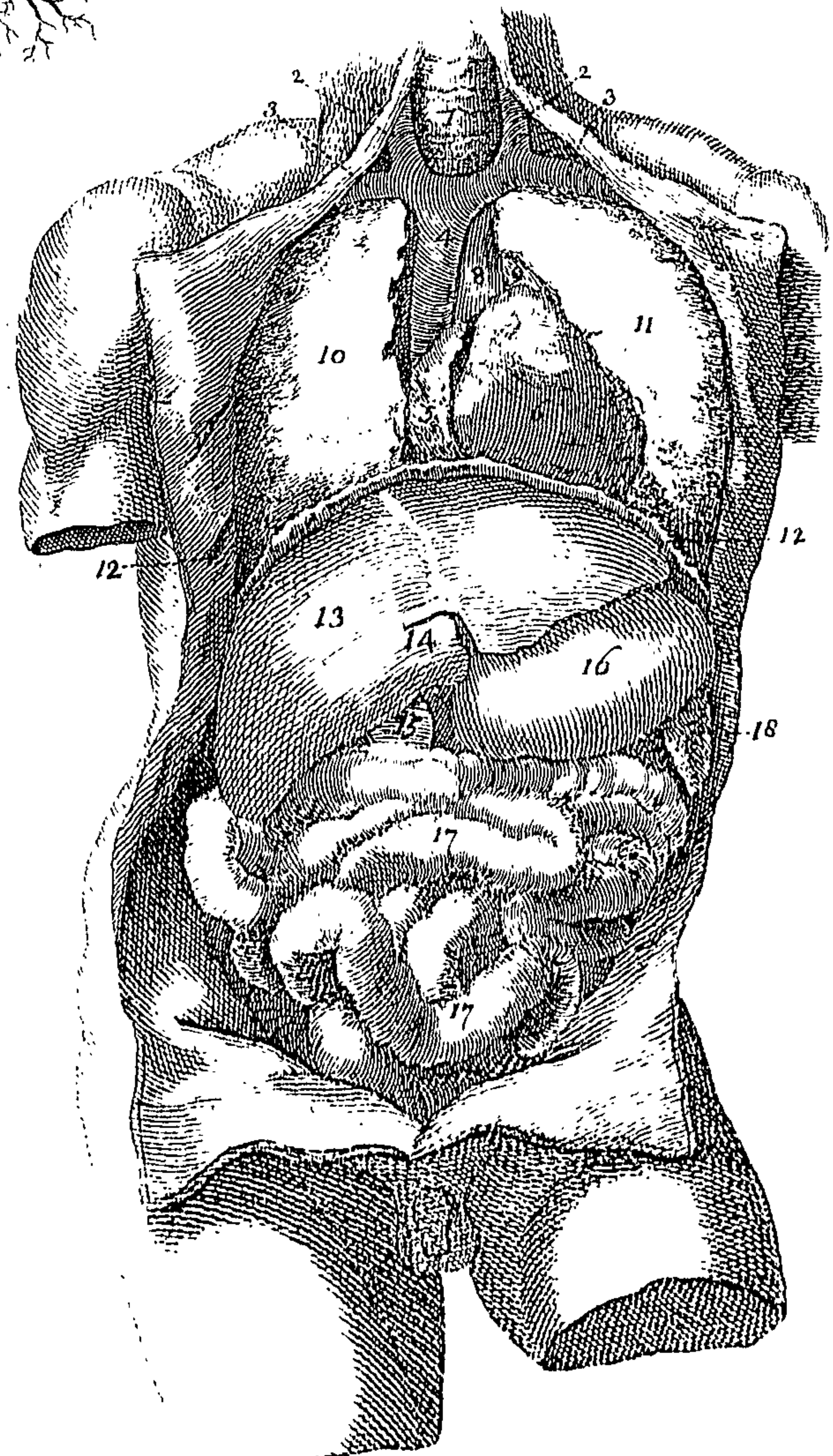
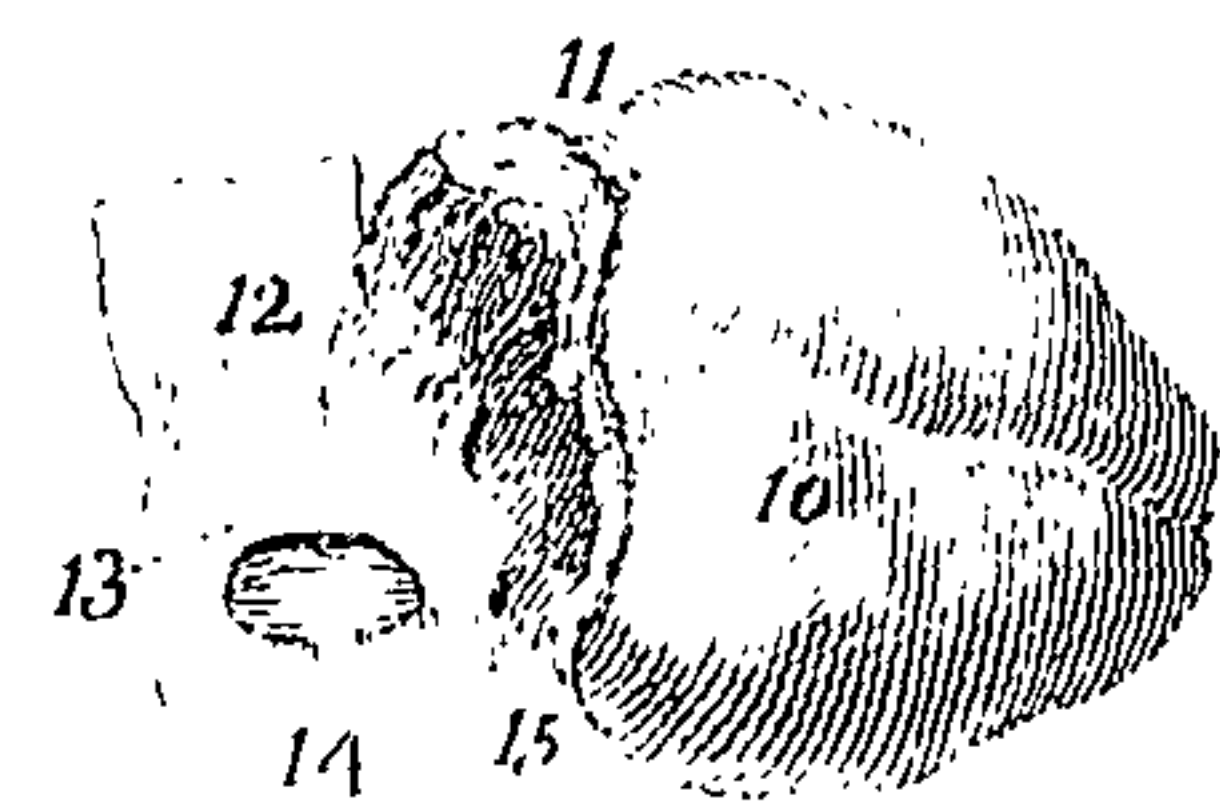
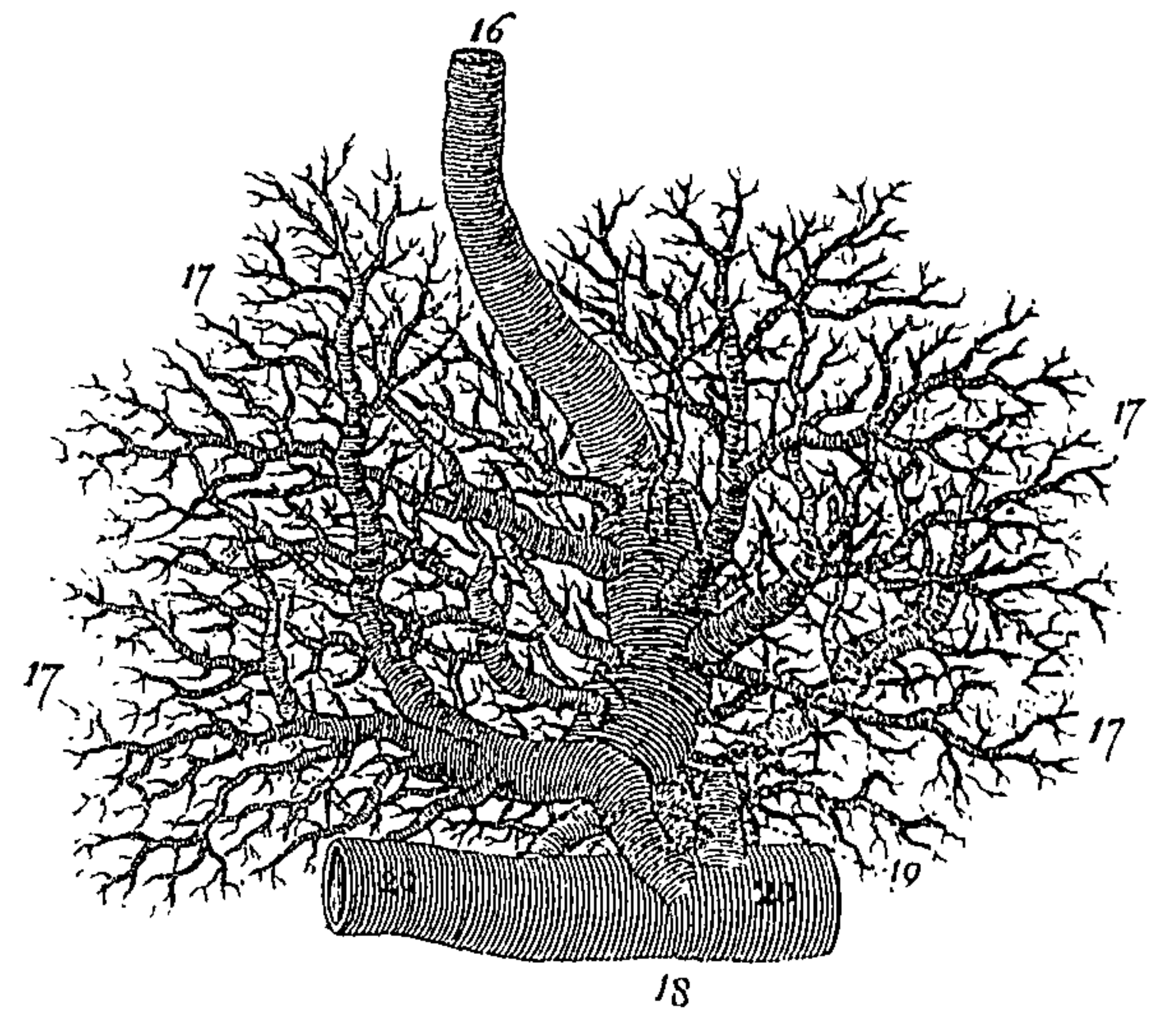
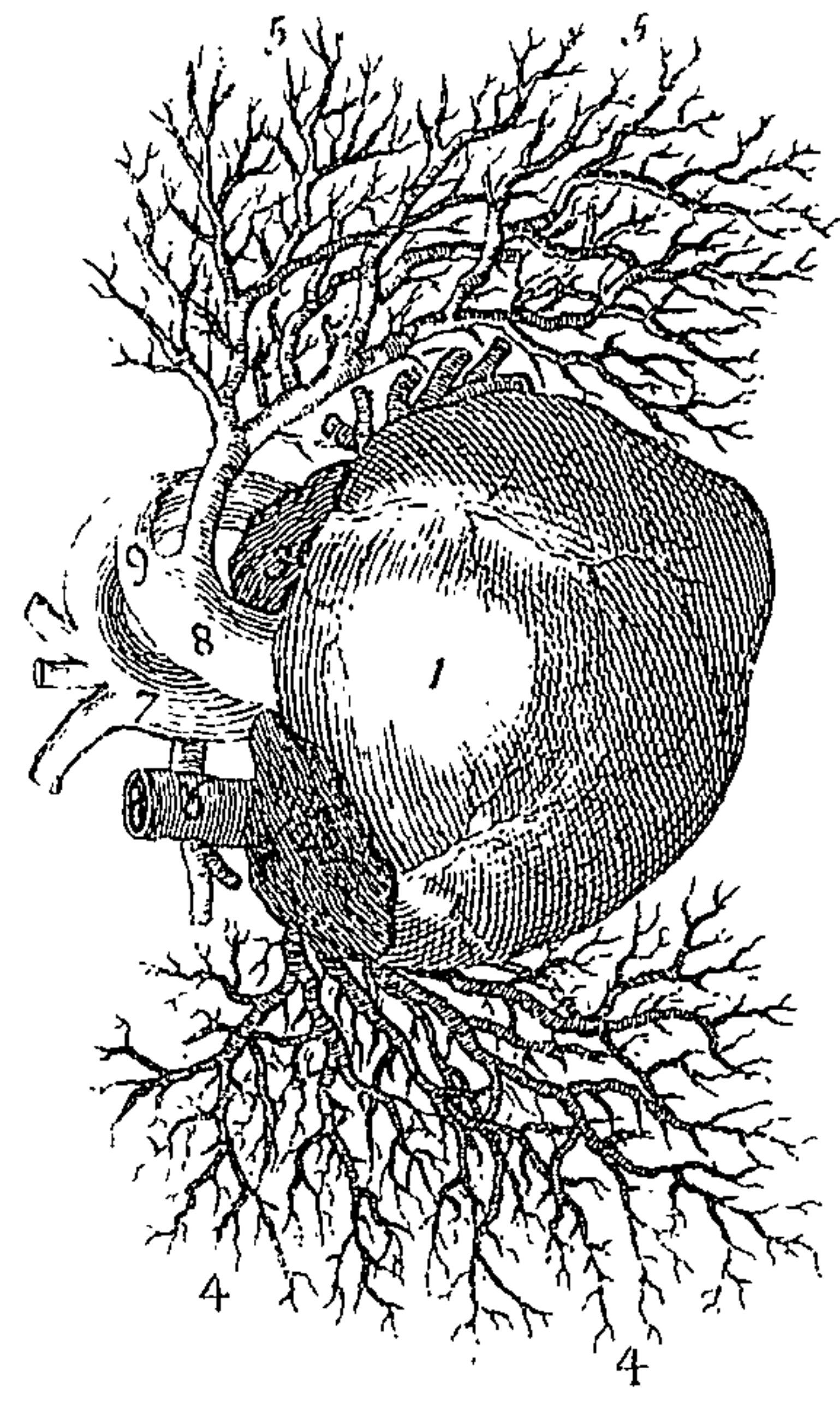
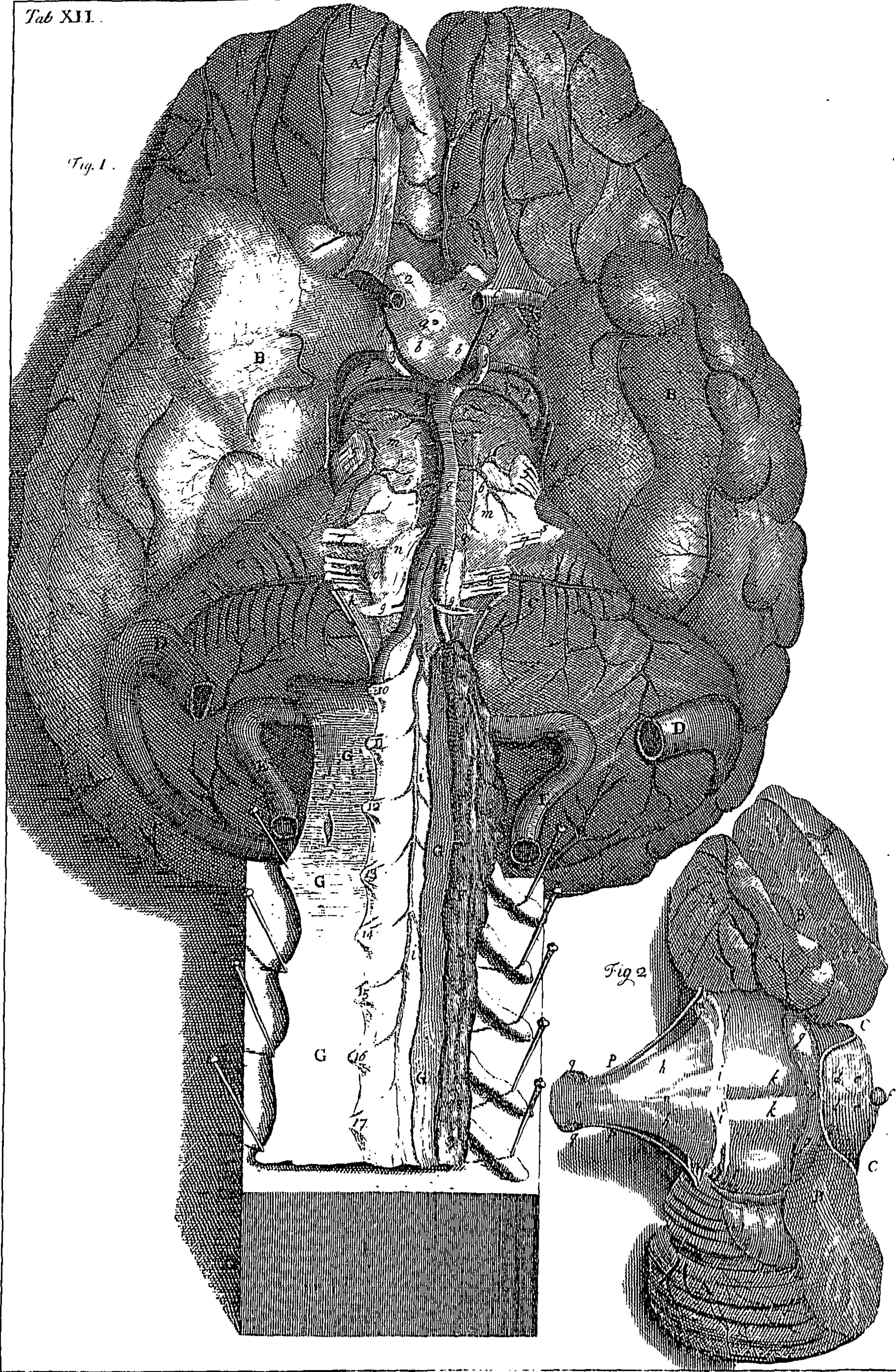
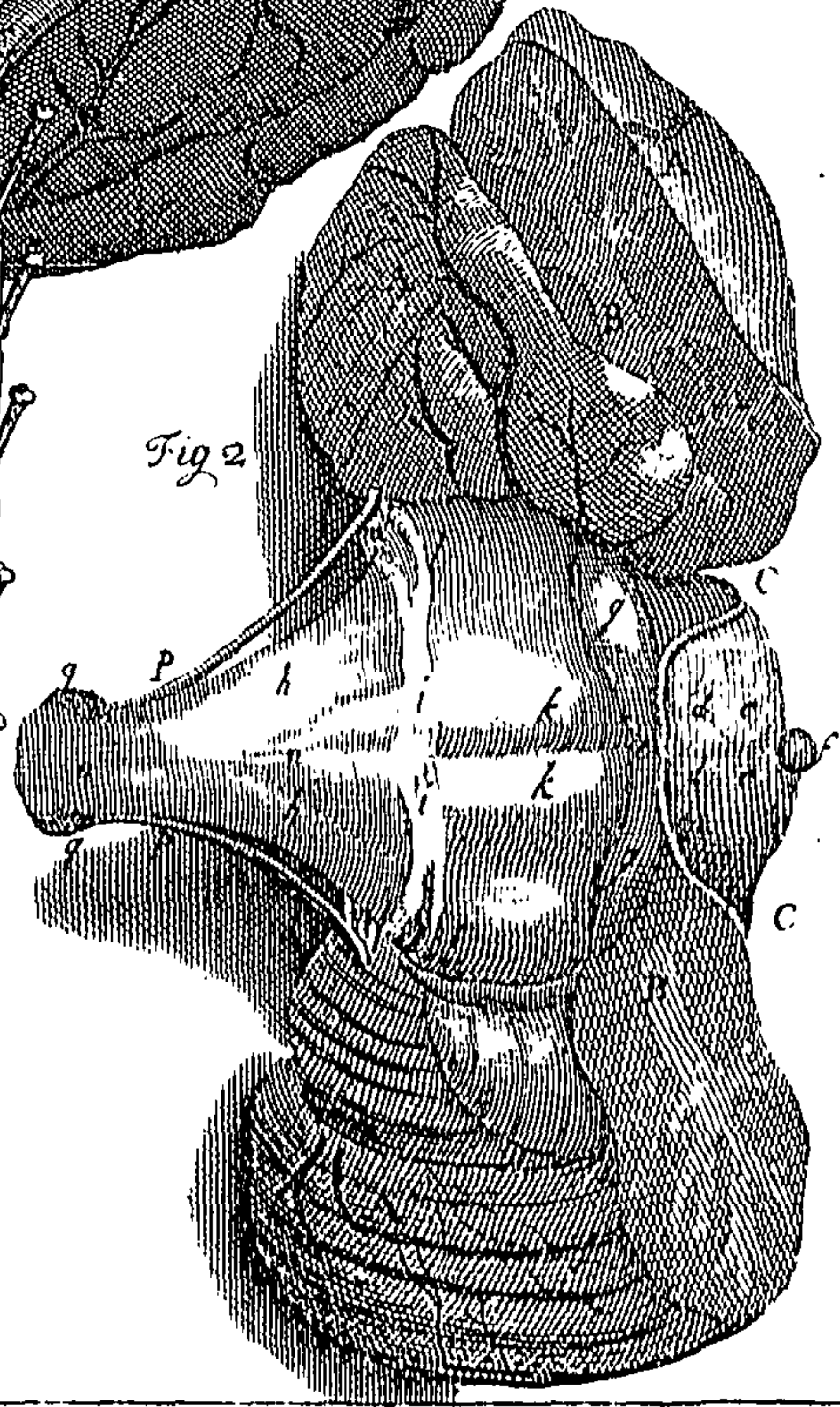


Fig. 2.



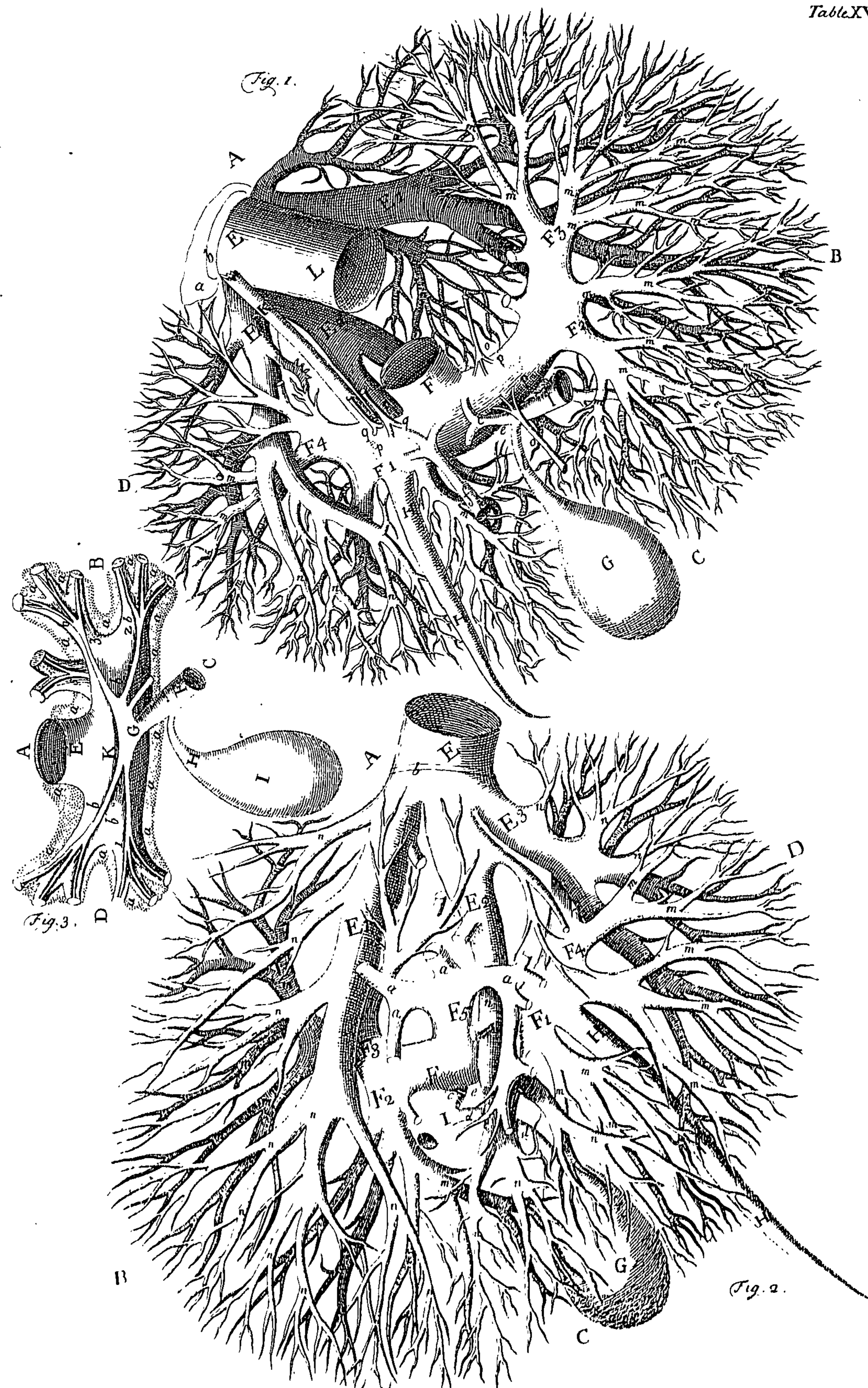
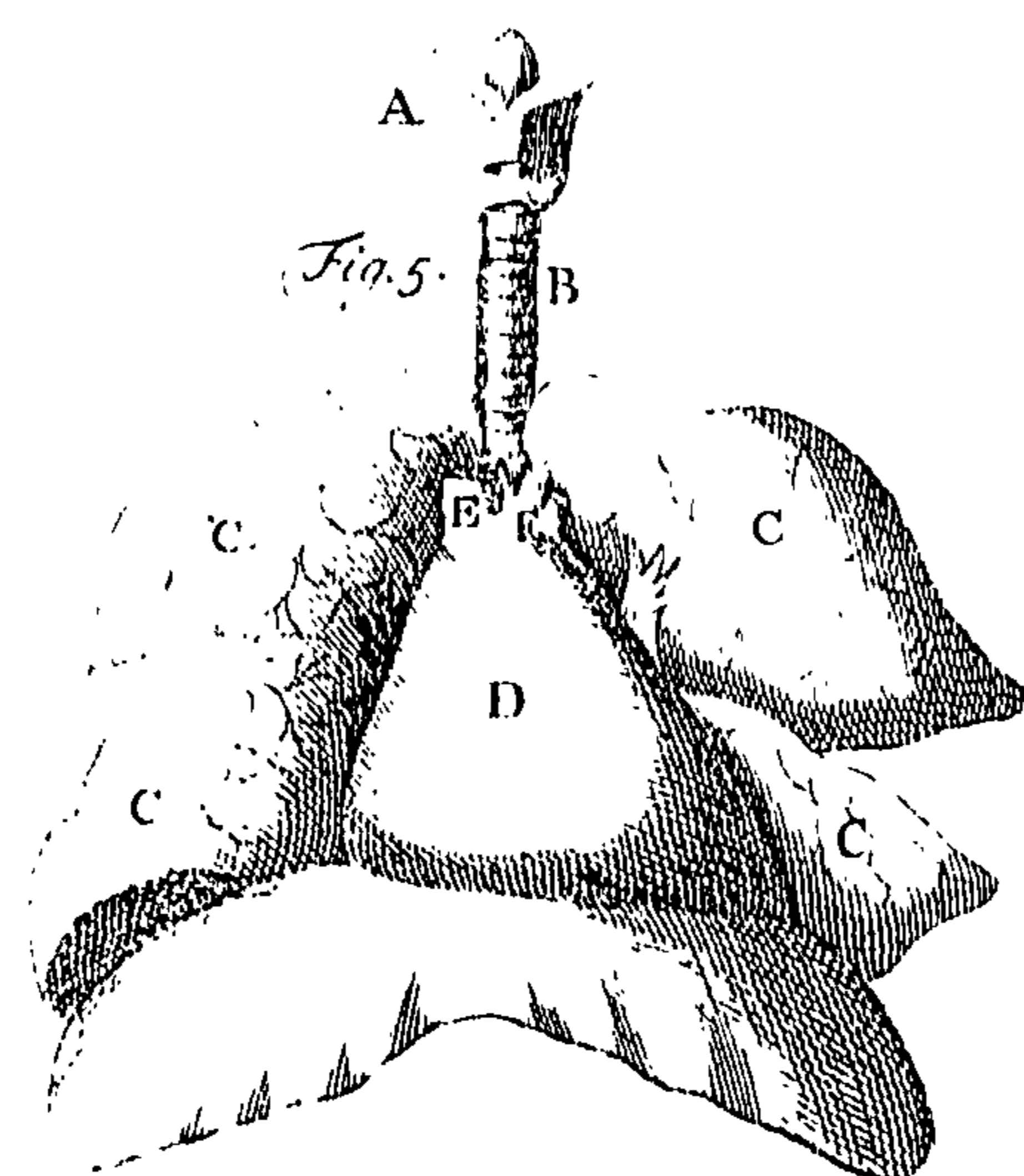
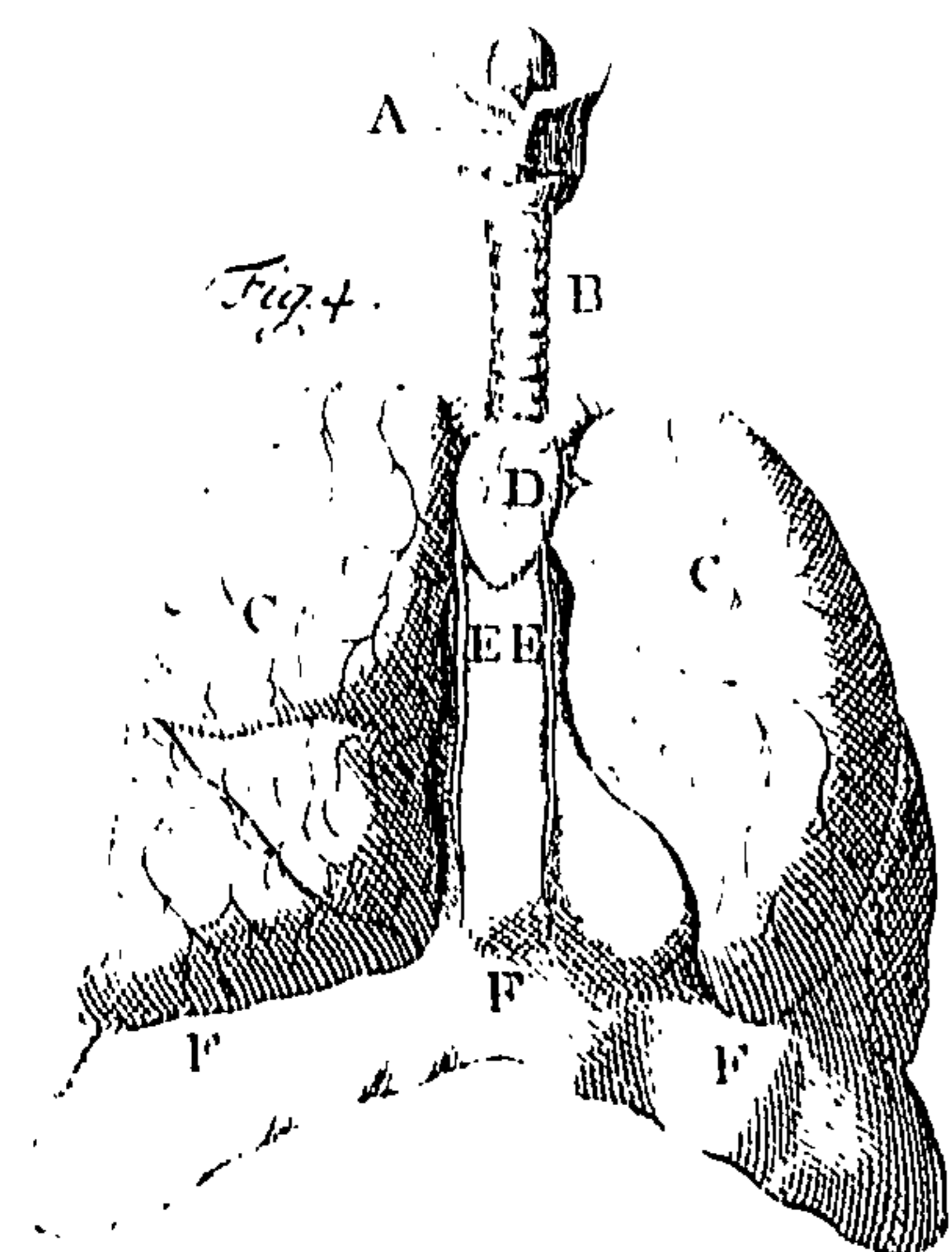
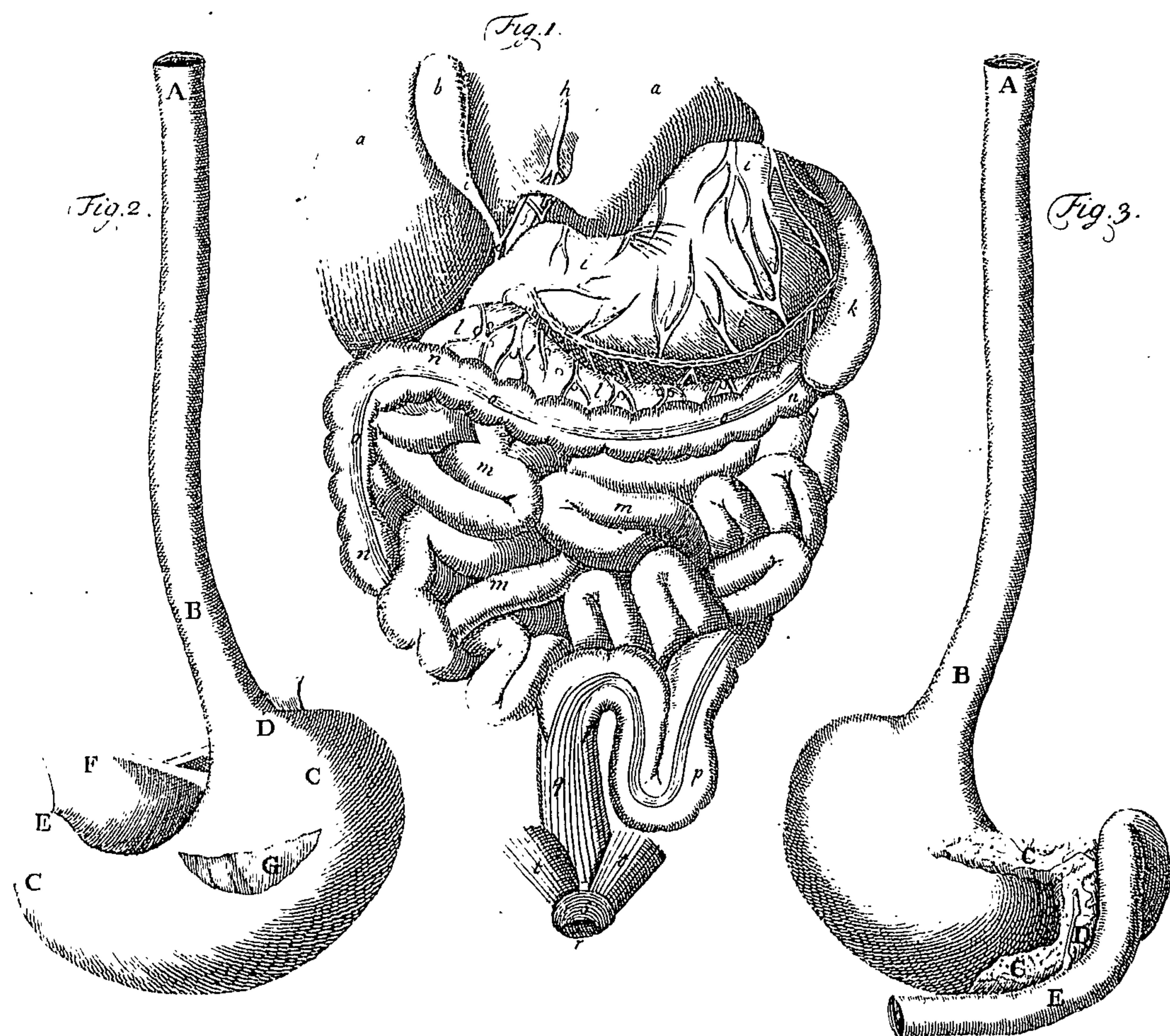
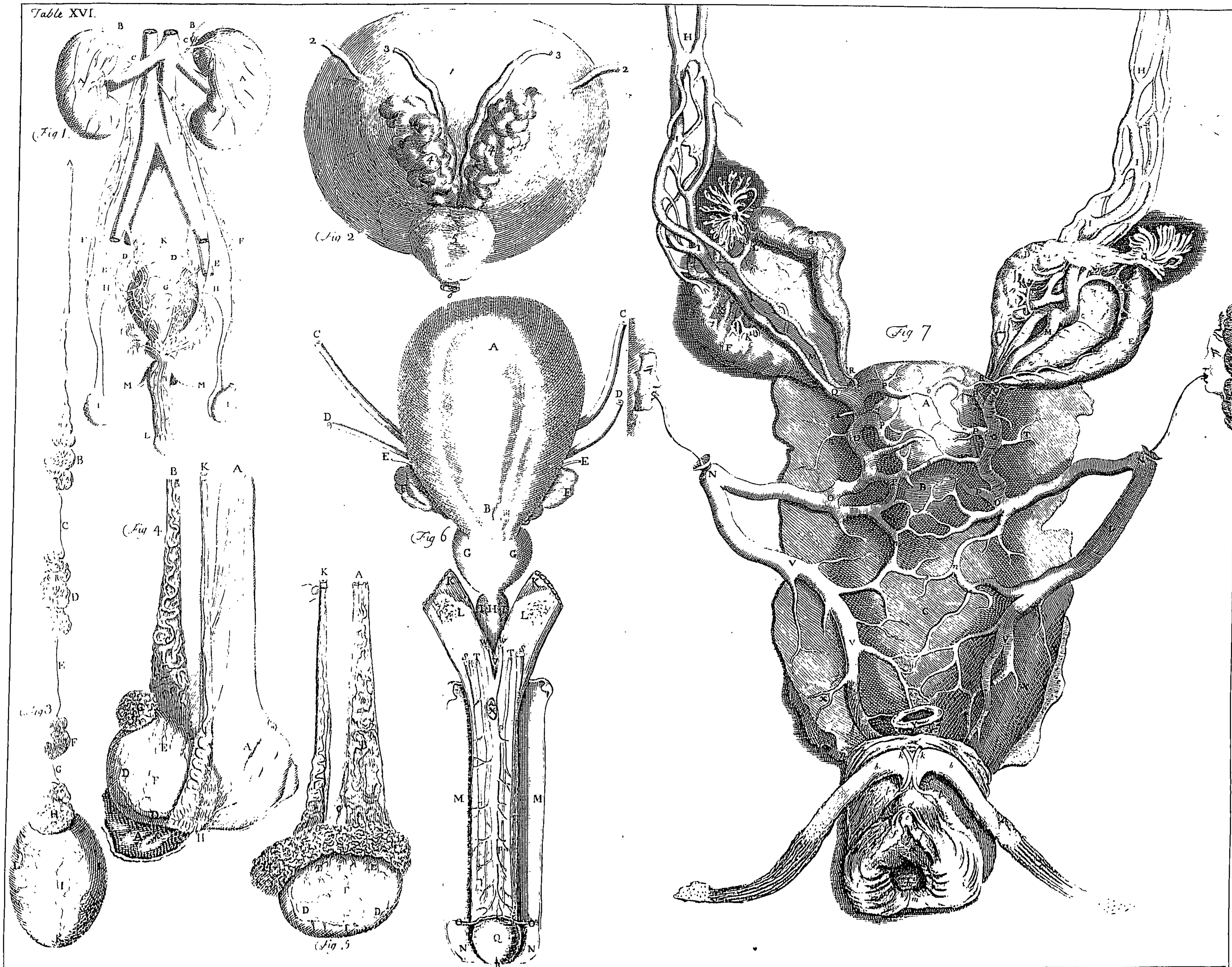
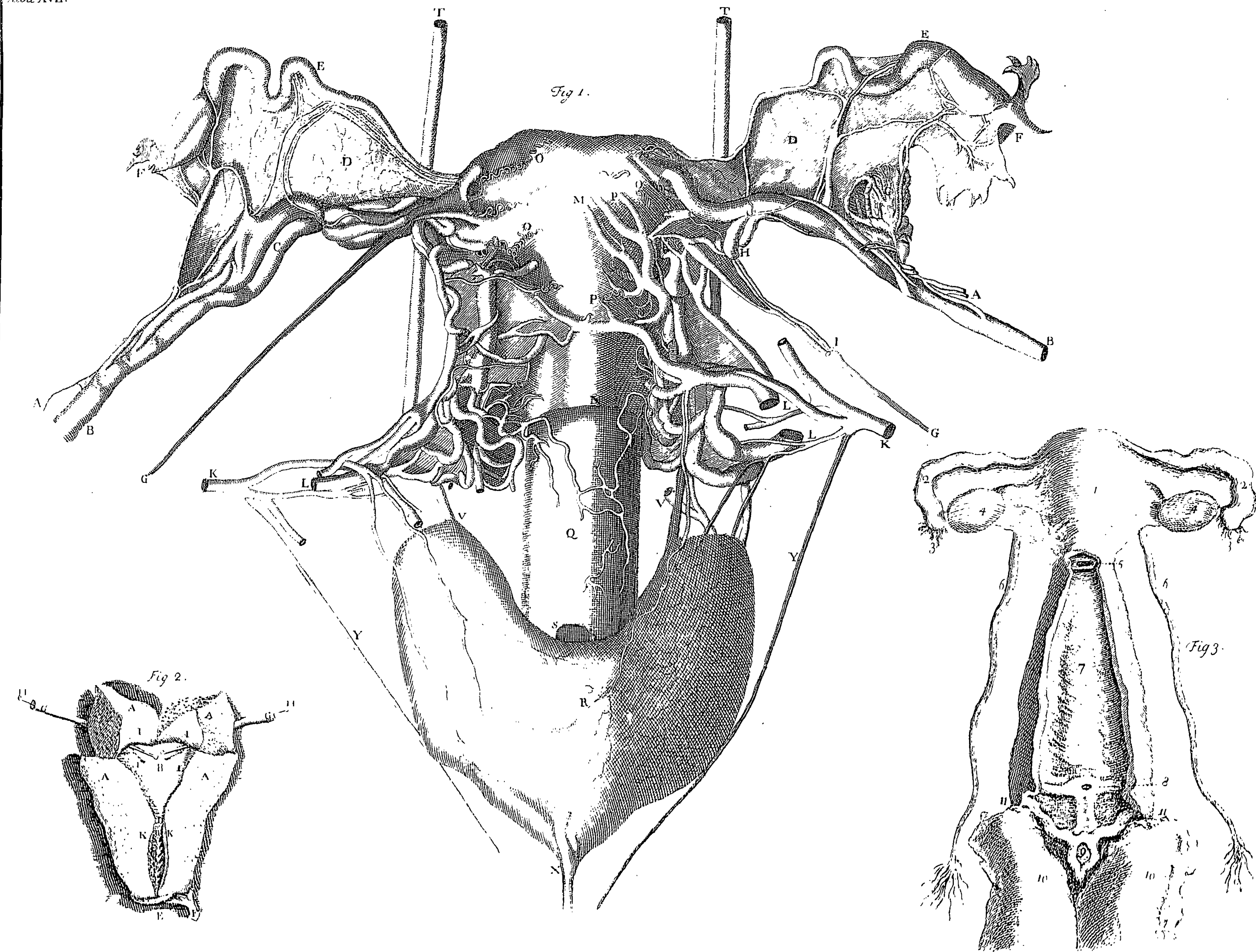


Table XVI.





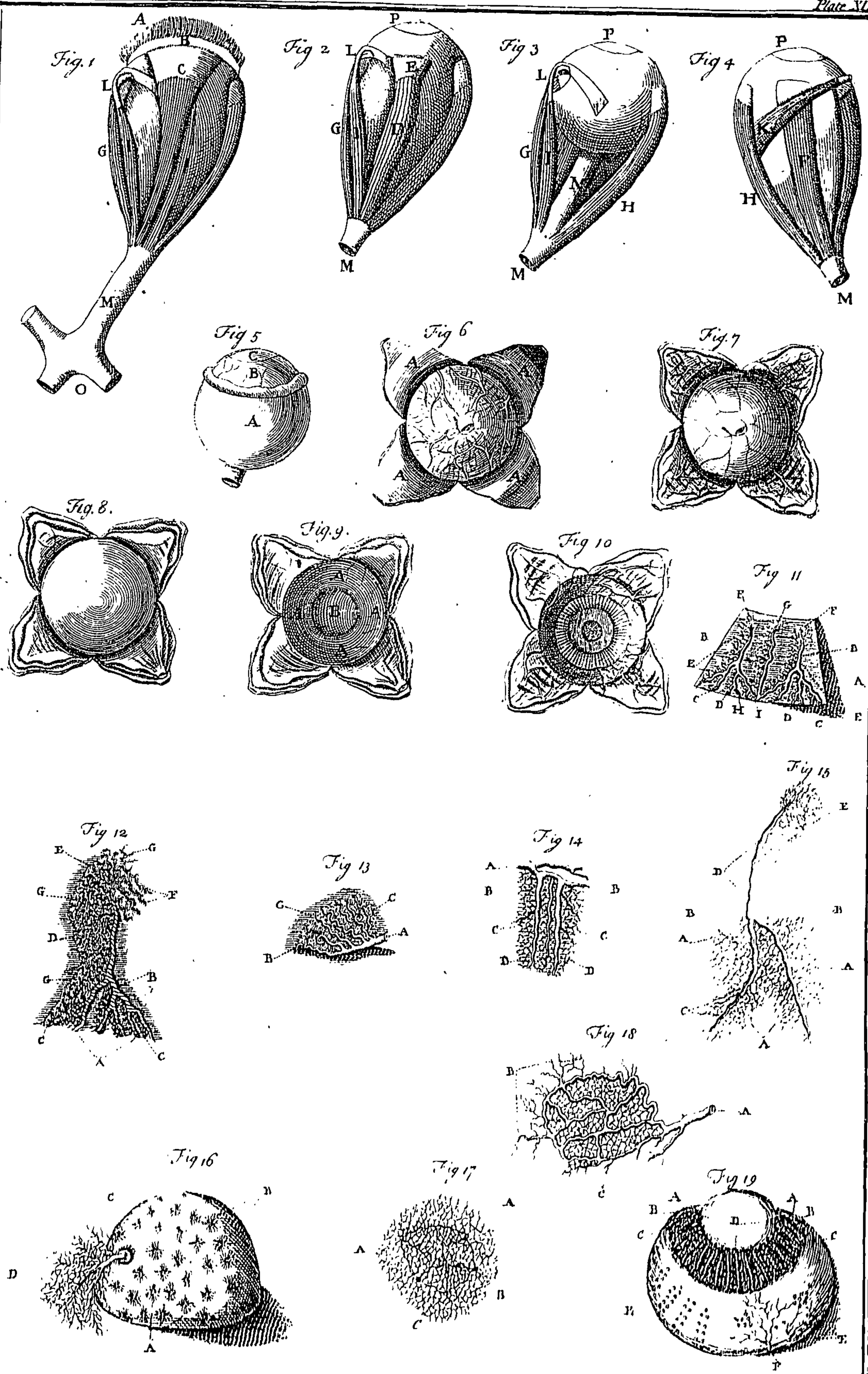


Table 20

CHARACTERS.

| | | | | |
|----------------------|-----|--|------|-------------------|
| • Abstrahere | ⊖ | • To Abstract | ♂ | • Steel or Iron |
| • Acetum | ✕ | • Vinegar | ☾ | • Ashes |
| • Acetum Destillatum | ✕ | • Distilled Vinegar | ♂ | • Pot. Ash |
| • Aer | ⊖ | • Air | ♂ | • Cinnabar |
| • Frugo destillata | ☿ | • Distilled Verdigrise | HE. | • To Coagulate |
| • Es Vstum | ♀ | • Burnt Brass | CC. | • Hartshorn |
| • Ichnium | ☿ | • A Kettle | CCU. | • Burnt Hartshorn |
| • Albumen | ☉ | • The white of an Egg | ☐ | • Chalk |
| • Alabastr vini | ☿ | • Highly rectified Spirit of Wine | ⊕ | • Saffron |
| • Alembicus | XX | • An Alembic | + | • A Crucible |
| • Alumen | ○ | • Alum | ♀ | • Crystal |
| • Alumen phlogosum | OP. | • Plumous Alum | ♀ | • Copper |
| • Alumen vstum | ☿ | • Burnt Alum | ♂ | • To Distil |
| • Amalgama | ☿ | • A Pail or wooden vessel of wine Gallons properly | ♂ | • To Digest |
| • Amphora | ☿ | • Equal parts of each | ♂ | • To Digest |
| • Ana | ☿ | • A Year | ♂ | • A Dram |
| • Annus | ☿ | • Antimony | ♂ | • Essence |
| • Antimonium | ☿ | • Water | ♂ | • Lees of Wine |
| • Aqua | ☿ | • Rain Water | ♂ | • Heat |
| • Aquafortis | ☿ | • Mother Water of Nitre | ♂ | • Heat |
| • Aqua Plumialis | ☿ | • Brandy | ♂ | • Heat |
| • Aqua Regia | ☿ | • Significans a Celestial sign | ♂ | • Heat |
| • Aqua salis ntri | ☿ | • Sand | ♂ | • Heat |
| • Aqua vitæ | ☿ | • Silver | ♂ | • Heat |
| • Arctenens | ☿ | • Filings of Silver | ♂ | • Heat |
| • Aræna | ☿ | • Quicksilver | ♂ | • Heat |
| • Argentum | ☿ | • The Ram a Celestial sign | ♂ | • Heat |
| • Argentum limatum | ☿ | • Arsenic | ♂ | • Heat |
| • Argentum vivum | ☿ | • Opiment | ♂ | • Heat |
| • Aris | ☿ | • Gold | ♂ | • Heat |
| • Arsenicum | ☿ | • Leaf Gold | ♂ | • Heat |
| • Asripigmentum | ☿ | • Filings of Gold | ♂ | • Heat |
| • Aurum | ☿ | • A Bath | ♂ | • Heat |
| • Aurum foliatum | ☿ | • The Heat of boiling Water | ♂ | • Heat |
| • Aurum limatum | ☿ | • A Vapour Bath or Heat | ♂ | • Heat |
| • Aurum potabile | ☿ | • To Cement | ♂ | • Heat |
| Babicum | ☿ | • To Calcine | ♂ | • Heat |
| Balneum Maria | ☿ | • Lime | ♂ | • Heat |
| Balneum vaporis | ☿ | • Quick Lime | ♂ | • Heat |
| Borax | ☿ | • Camphire | ♂ | • Heat |
| Camentare | ☿ | • The Celestial sign thus call'd | ♂ | • Heat |
| Calcinare | ☿ | • The Celestial sign thus call'd | ♂ | • Heat |
| Calc | ☿ | • Manipulus | ♂ | • Heat |
| Calc viva | ☿ | • Manipulus semis | ♂ | • Heat |
| Camphora | ☿ | • Marcassita | ♂ | • Heat |
| Cancer | ☿ | • Mars | ♂ | • Heat |
| Capricornus | ☿ | • Martis limatura | ♂ | • Heat |
| Caput mortuum | ☿ | • Mafsa | ♂ | • Heat |
| Cem | ☿ | | ♂ | • Heat |
| Cerussa | ☿ | | ♂ | • Heat |

Table 21

CHARACTERS.

| | | | | | | |
|--------------------------|---|--------------------------------|---|-------------------------|---|-------------------------------|
| • Materia | ☿ | • Matter | ☿ | • Scorpius | ☿ | • The Celestial sign Scorpion |
| • Materia Prima | ☿ | • The first Matter | ☿ | • Serpulus | ☿ | • A Serpule |
| • Mel | ☿ | • Honey | ☿ | • Semis | ☿ | • Half |
| • Mensis | ☿ | • A Month | ☿ | • Sextilis | ☿ | • Sextile |
| • Mercurius | ☿ | • Mercury | ☿ | • Sigillare Hermetice | ☿ | • To Seal hermetically |
| • Mercurius precipitatus | ☿ | • Mercury Precipitate | ☿ | • Sol | ☿ | • The Sun or Gold |
| • Mercurius sublimatus | ☿ | • Mercury sublimat | ☿ | • Solvere | ☿ | • To Dissolve |
| • Vitrum | ☿ | • Vitre | ☿ | • Spiritus | ☿ | • Spirit |
| • Vax | ☿ | • A Night | ☿ | • Spiritus vini | ☿ | • Spirit of Wine |
| • Oleum | ☿ | • Oil | ☿ | • Stannum | ☿ | • Tin |
| • Oleum olivarum | ☿ | • Oil of Olives | ☿ | • Stantum super Stantum | ☿ | • To sublime |
| • Oppositio | ☿ | • Opposition in Astronomy | ☿ | • Sublimare | ☿ | • To sublime |
| • Oricalcum | ☿ | • Brass | ☿ | • Succinum | ☿ | • Amber |
| • Phlegma | ☿ | • Phlegm | ☿ | • Sulphur | ☿ | • Sulphur of the Philosophers |
| • Pifces | ☿ | • The Celestial sign so call'd | ☿ | • Sulphur Phlogosorum | ☿ | • Mineral or live sulphur |
| • Plumbum | ☿ | • Lead | ☿ | • Sulphur vivum | ☿ | • Sulphur |
| • Precipitare | ☿ | • To precipitate | ☿ | • Talcum | ☿ | • Talc |
| • Pugillus | ☿ | • A Pugil | ☿ | • Tartarus | ☿ | • Tartar |
| • Pulvis | ☿ | • Powder | ☿ | • Taurus | ☿ | • The Bull a Celestial sign |
| • Pumex | ☿ | • Pumice Stone | ☿ | • Terra | ☿ | • Earth |
| • Purificare | ☿ | • To Purify | ☿ | • Terra sigillata | ☿ | • Sealed Earth |
| • Putrificare | ☿ | • To Putrify | ☿ | • Tinctura | ☿ | • Tincture |
| • Quadratus | ☿ | • Quartile | ☿ | • Trigonus | ☿ | • Trine |
| • Quinta Essentia | ☿ | • Quintessence | ☿ | • Venus | ☿ | • Copper |
| • Recipiens | ☿ | • A Receiver | ☿ | • Vinum | ☿ | • Wine |
| • Reaulus | ☿ | • A Rectort | ☿ | • Vinum album | ☿ | • White Wine |
| • Retorta | ☿ | • A Retort | ☿ | • Vinum coctum | ☿ | • Burnt Wine |
| • Saccharum | ☿ | • Sugar | ☿ | • Vinum rubrum | ☿ | • Red Wine |
| • Sal alcali | ☿ | • Alkaline salt | ☿ | • Vingo | ☿ | • The Celestial sign |
| • Sal ammoniacum | ☿ | • Common salt | ☿ | • Viride & Eris | ☿ | • Verdigrise |
| • Sal commune | ☿ | • Common salt | ☿ | • Vitellum ovi | ☿ | • The Yolk of an Egg |
| • Sal gemma | ☿ | • Sea salt | ☿ | • Vitriolum | ☿ | • Vitriol |
| • Sal marinum | ☿ | • Sea salt | ☿ | • Vitrum | ☿ | • Glass |
| • Sal nitrum | ☿ | • Salt Nitre or Nitre | ☿ | • Uncia | ☿ | • An Ounce |
| • Sapo | ☿ | • Soap | ☿ | • Urina | ☿ | • Urine |
| • Saturnus | ☿ | • Lead or Saturn | ☿ | | ☿ | |

| | | | | |
|-----------------|-----------------|---------------|------------------|-------------|
| | | | 3j a Scruple | 20 Grains |
| | | 3j a Dram | 3 Scruples | 60 Grains |
| | 3j 1 Ounce | 8 Drams | 24 Scruples | 480 Grains |
| 1lb 1 Pound | 12 Ounces | 96 Drams | 288 Scruples | 5760 Grains |
| 1lb 1/2 a Pound | 6 Ounces | 48 Drams | 144 Scruples | 2880 Grains |
| | 3j 1/2 an Ounce | 4 Drams | 12 Scruples | 240 Grains |
| | | 3j 1/2 a Dram | 12 Scruples | 30 Grains |
| | | | 3j 1/2 a Scruple | 10 Grains |

P. Amongst the Medicinal Writers, signifies Pondo, Weight.
 XX. Oras it was afterwards wrote * stands for Tenuarius.
 These Characters, especially the last, occur in Celsius.

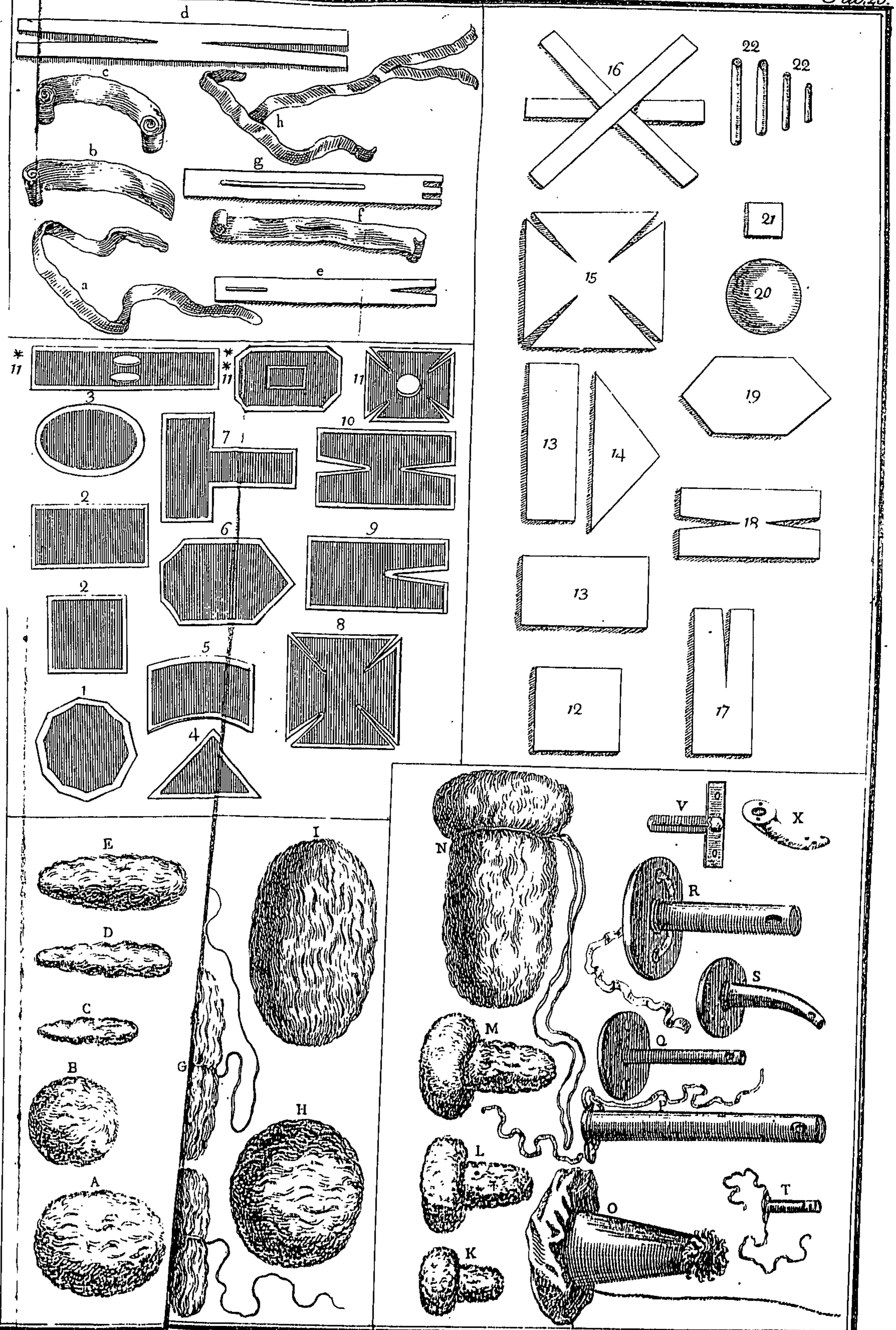
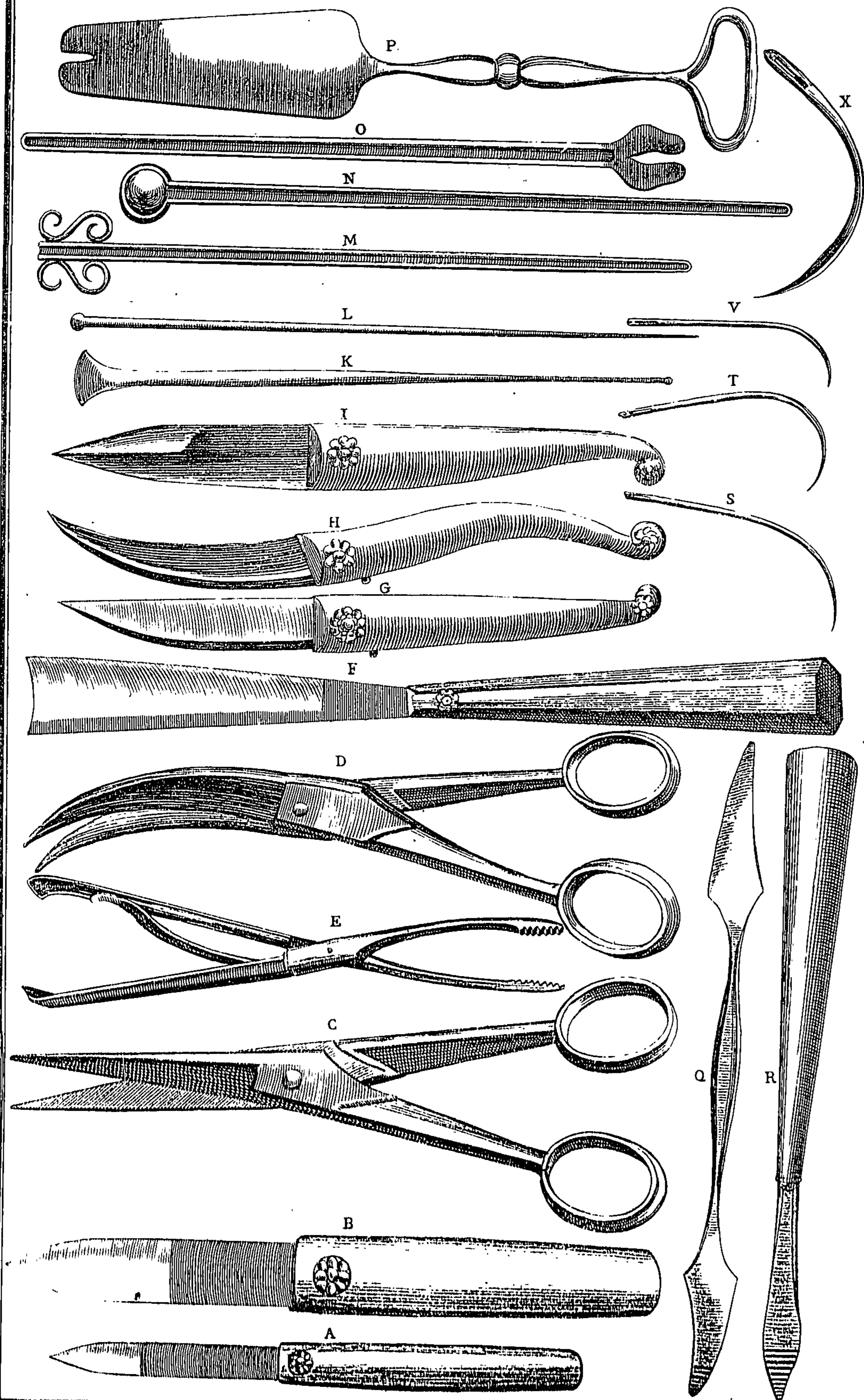


Table XXIV. $T_{eq}:1$.

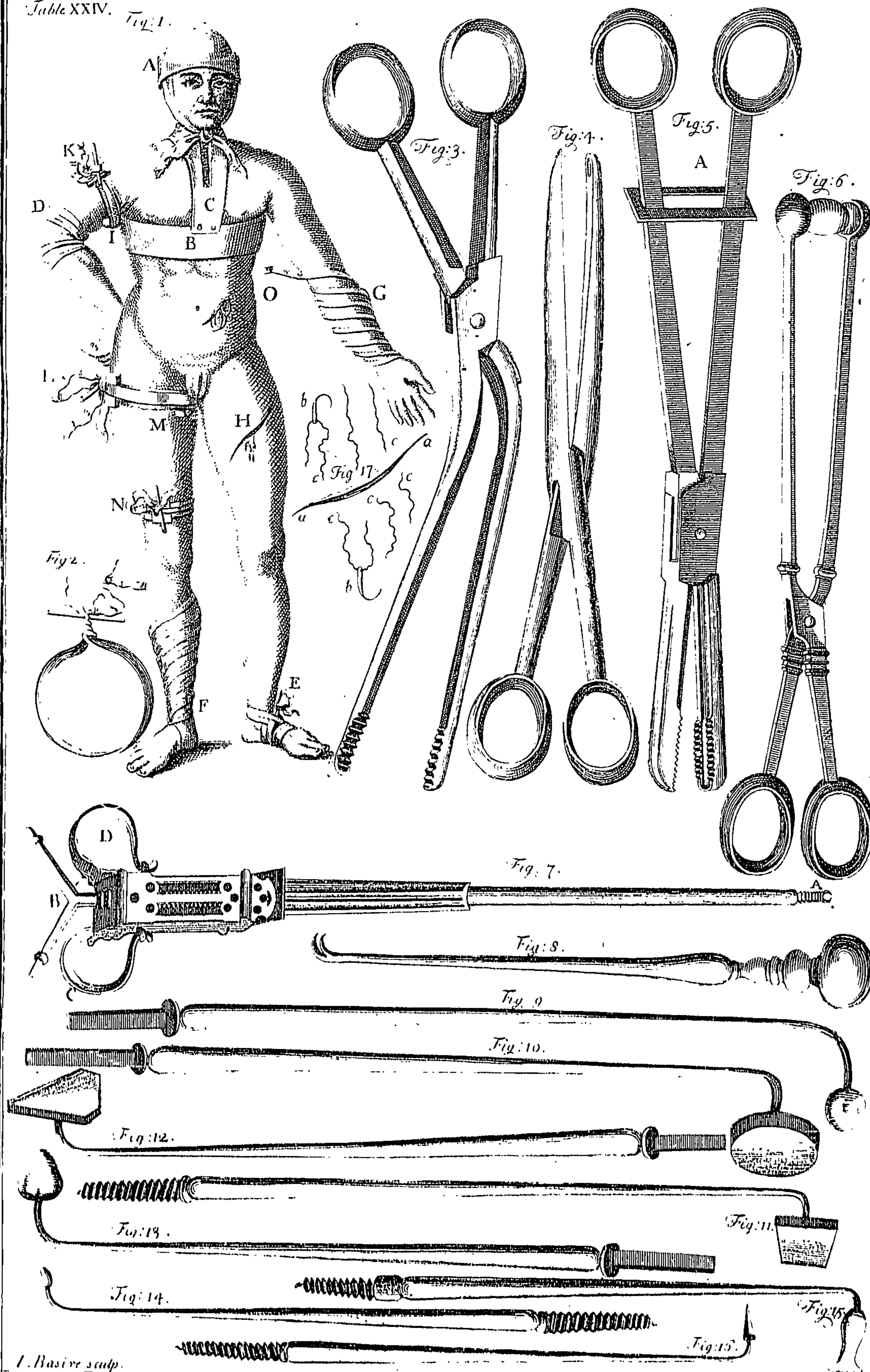
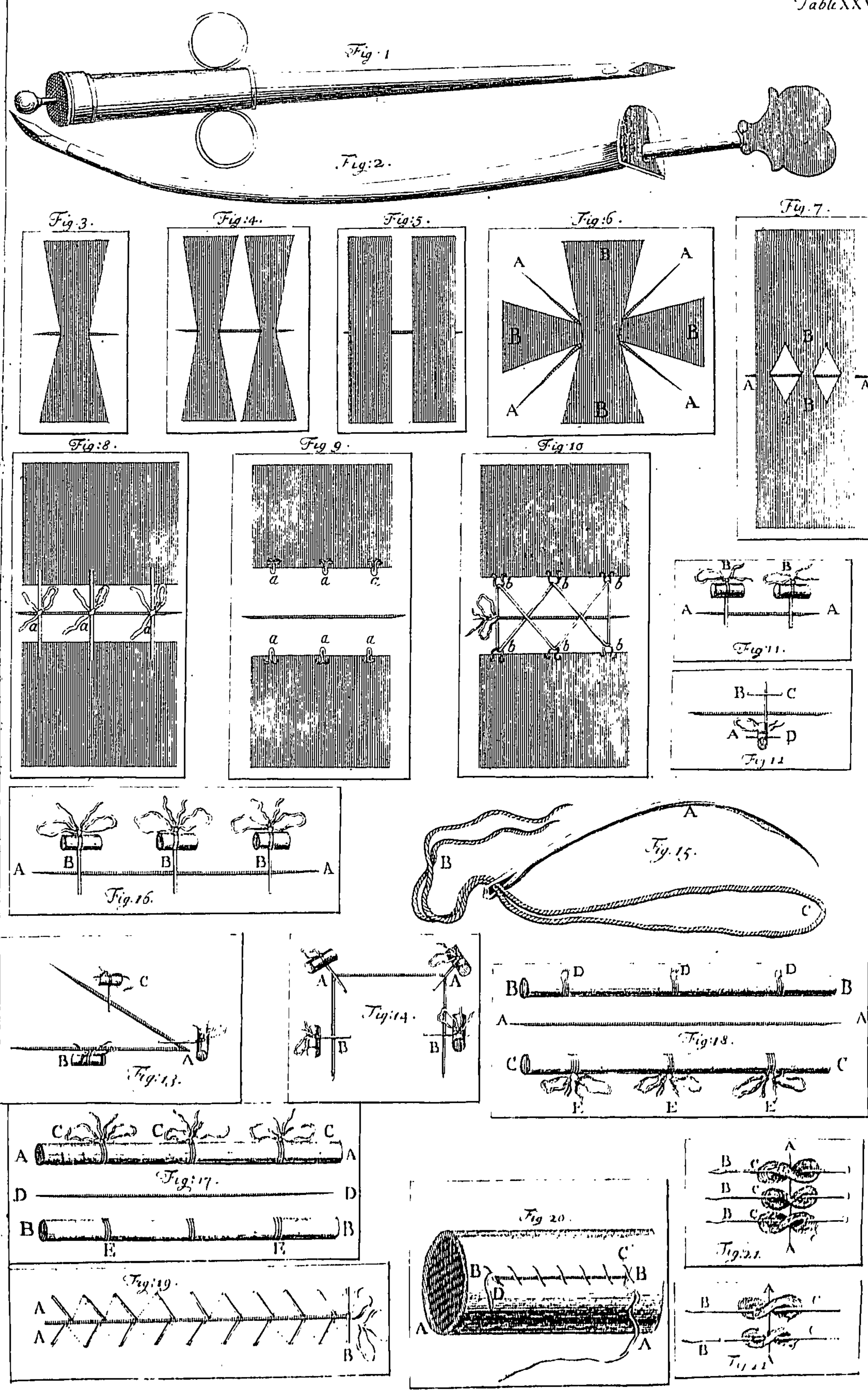
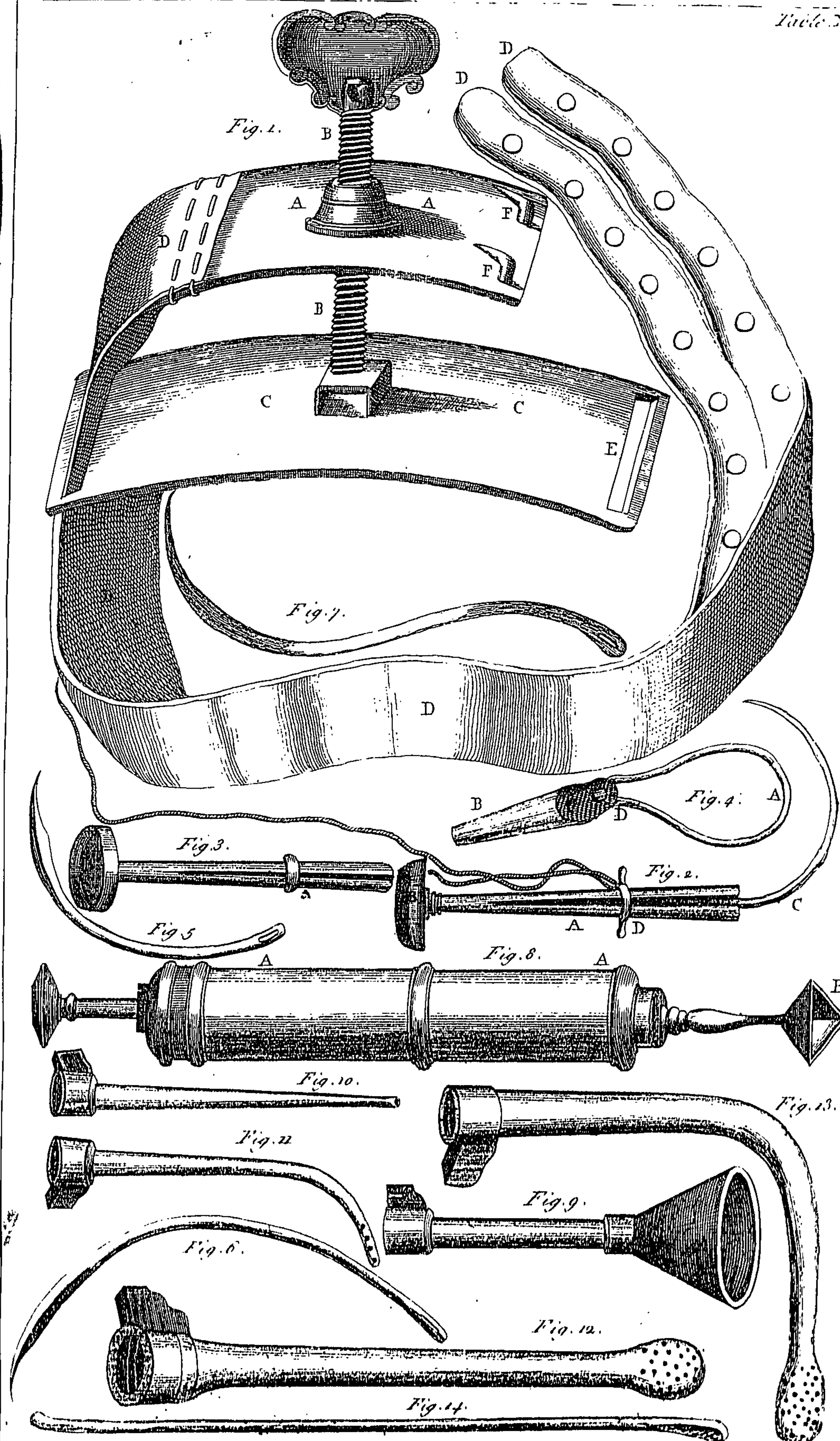
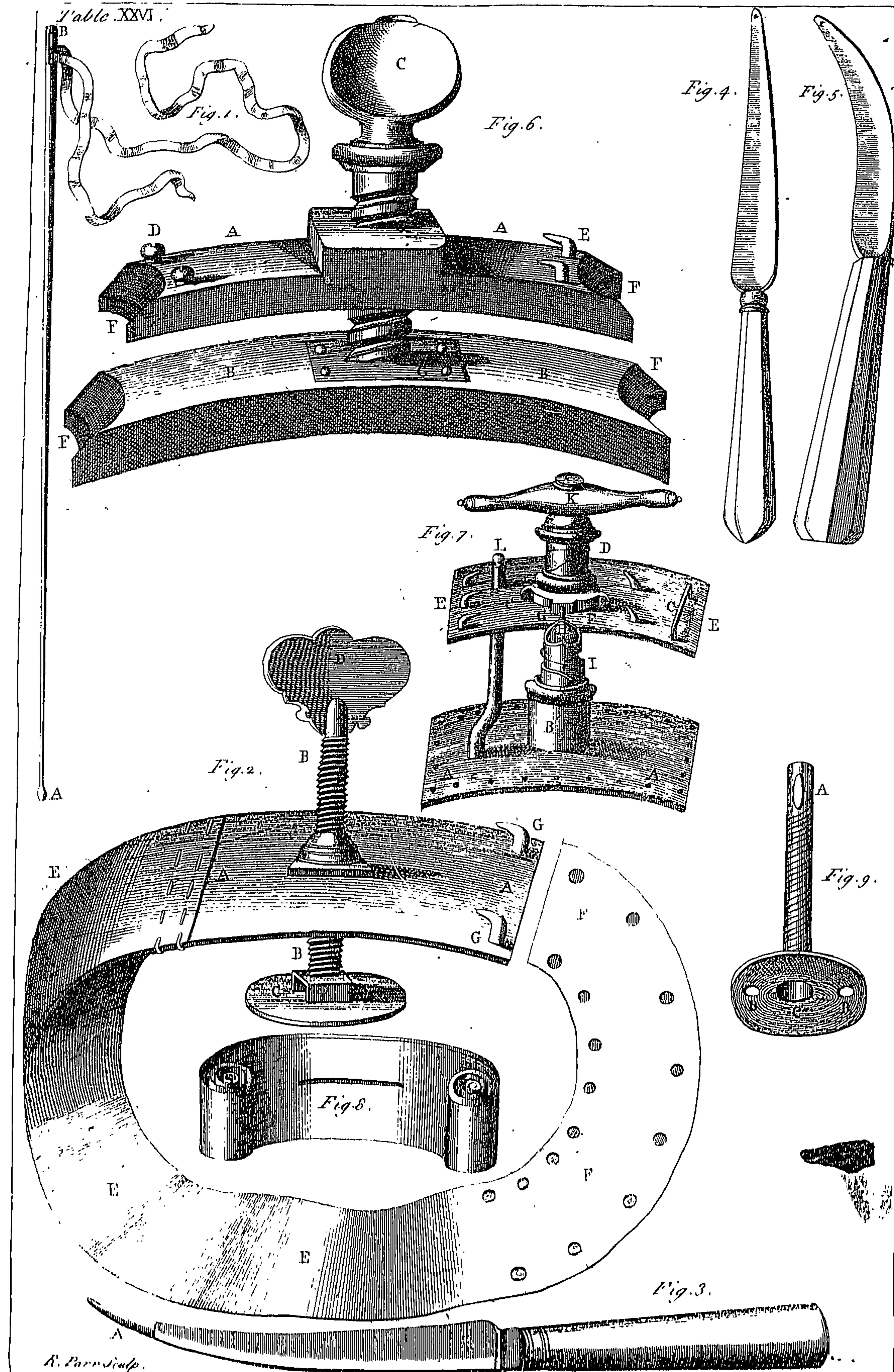


Table XXV.





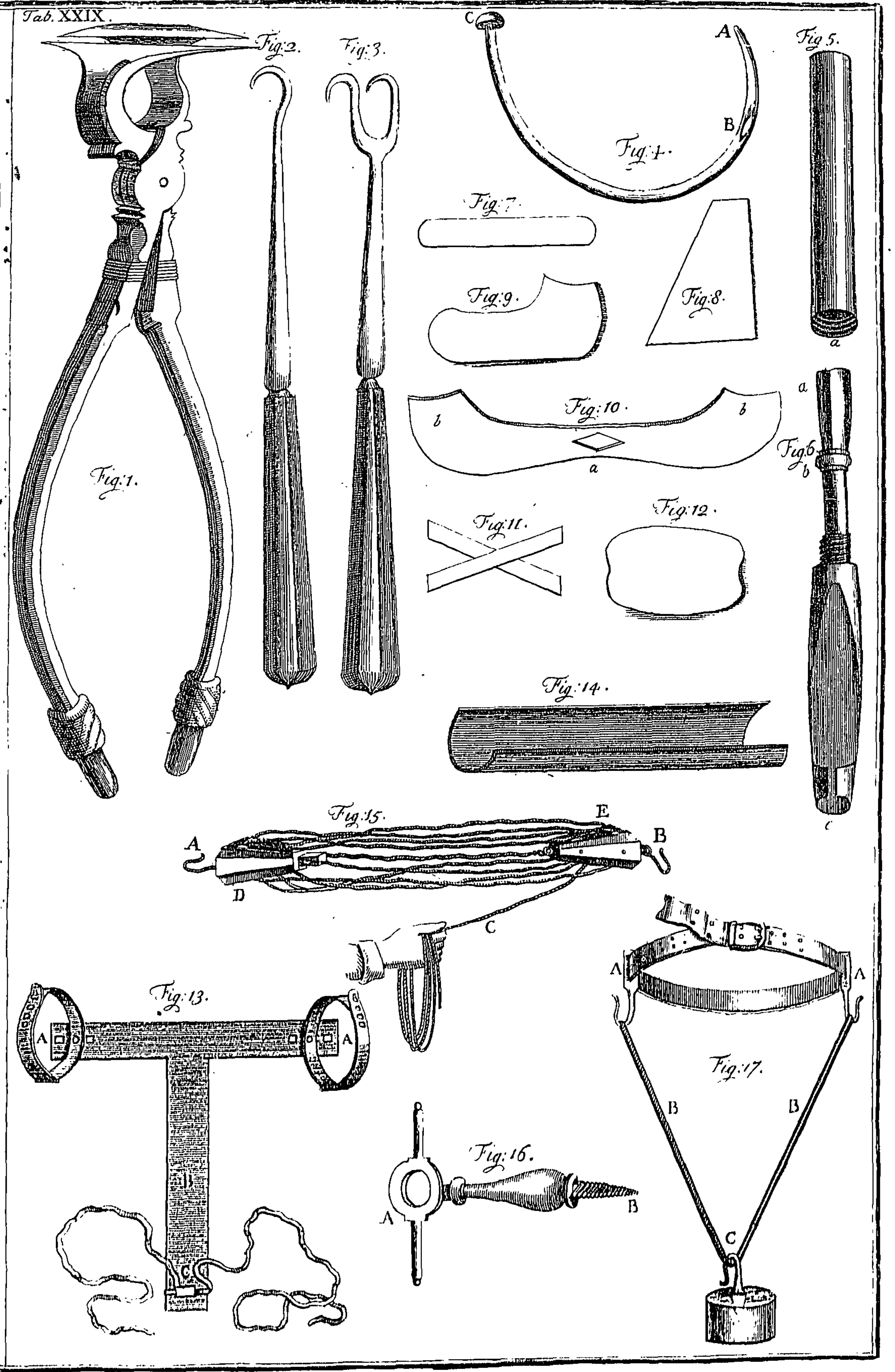
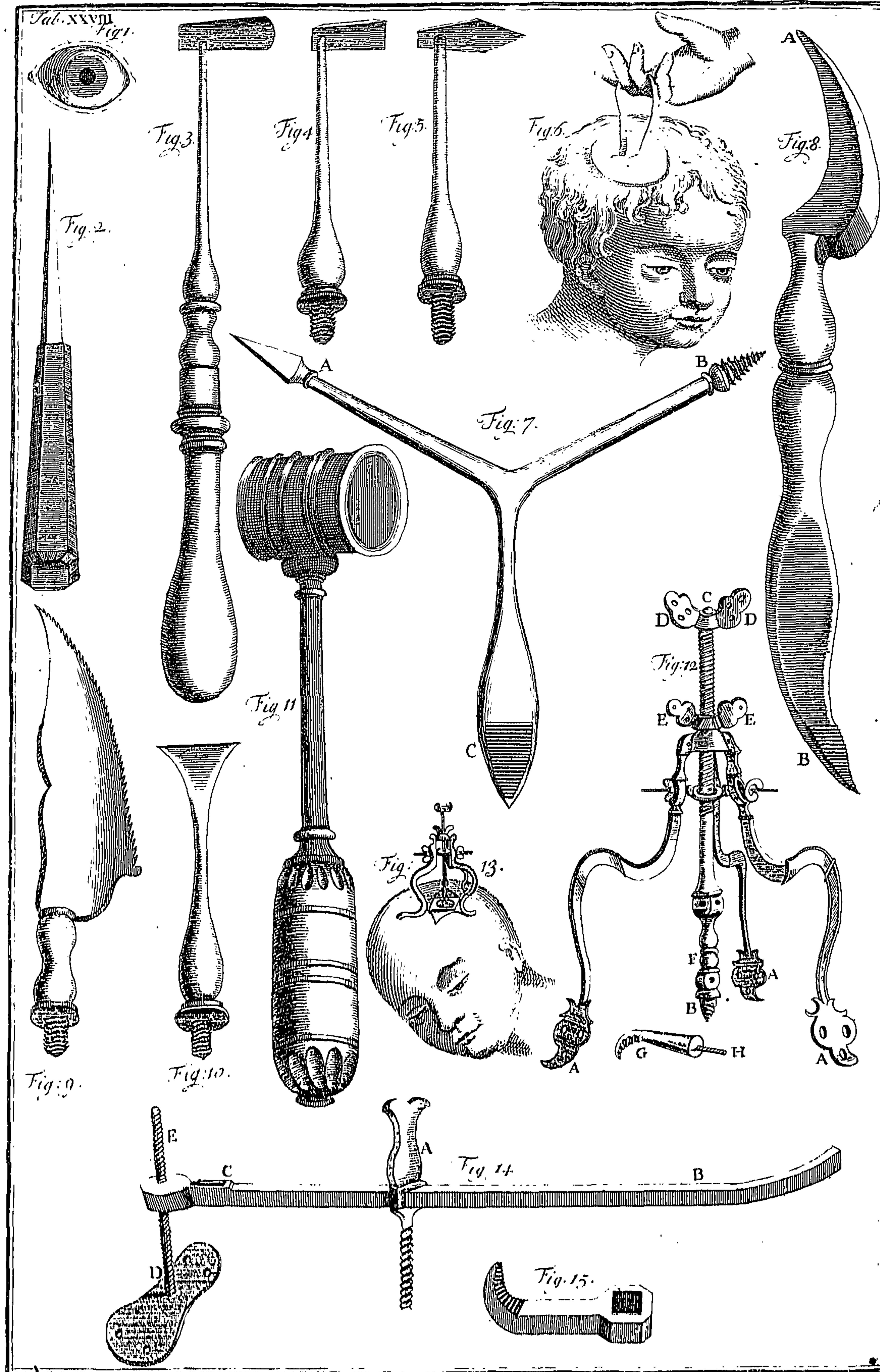


Fig. 1.

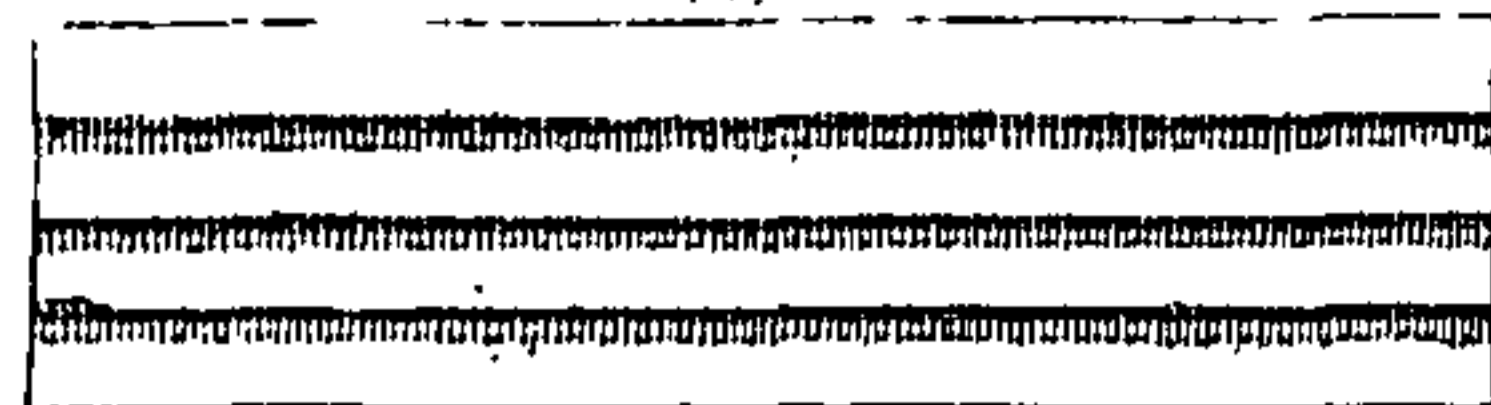


Fig. 2.



Fig. 3.

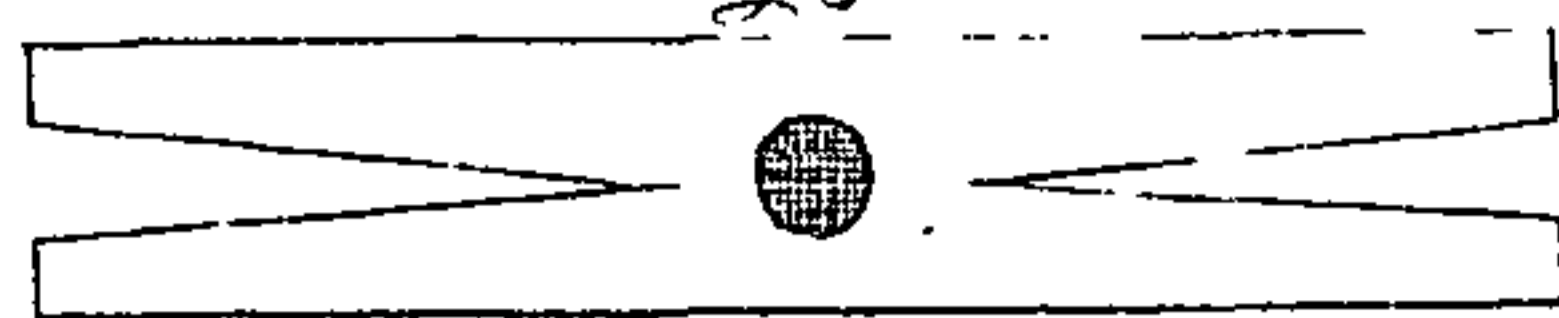


Fig. 4.

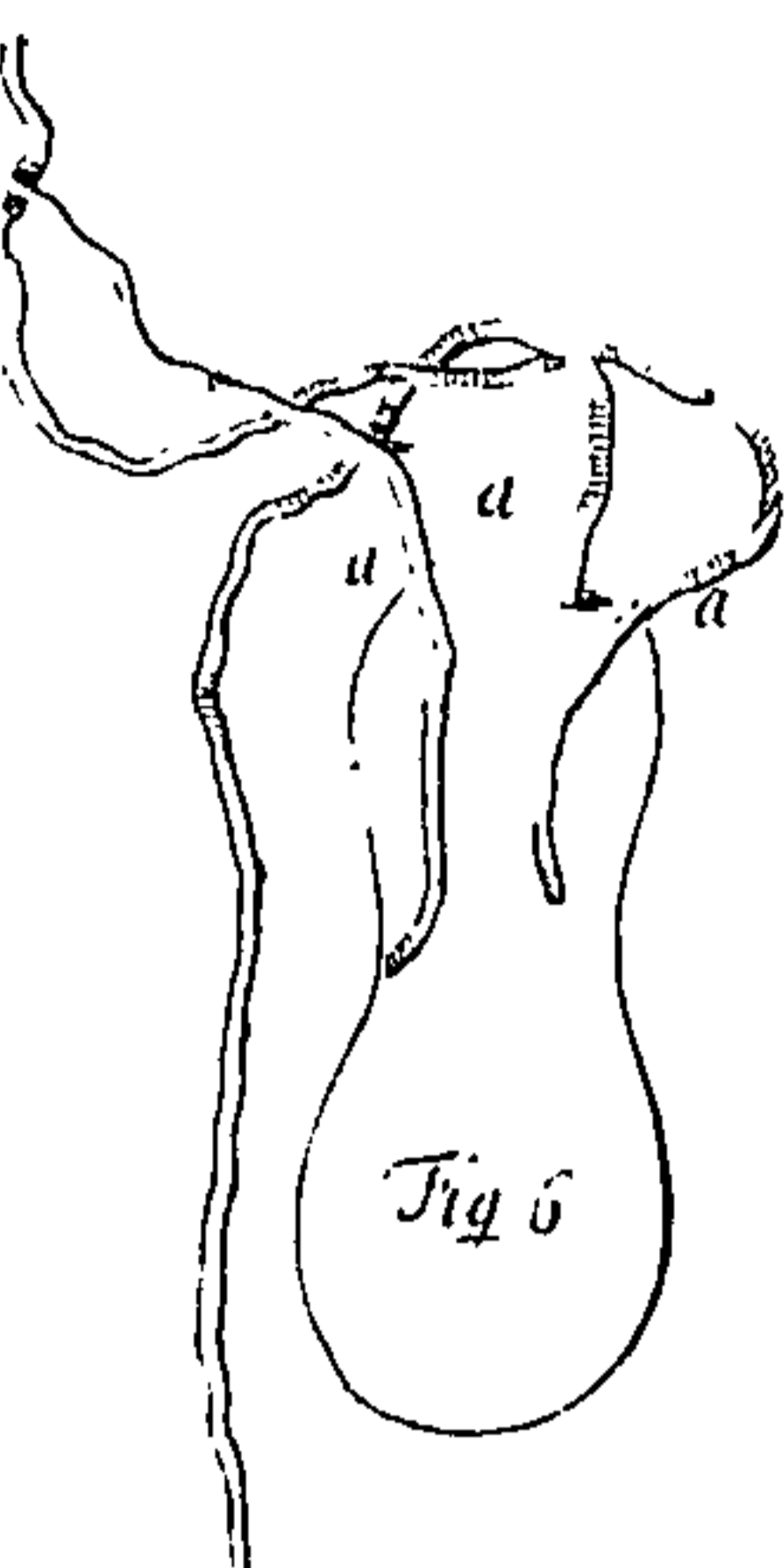
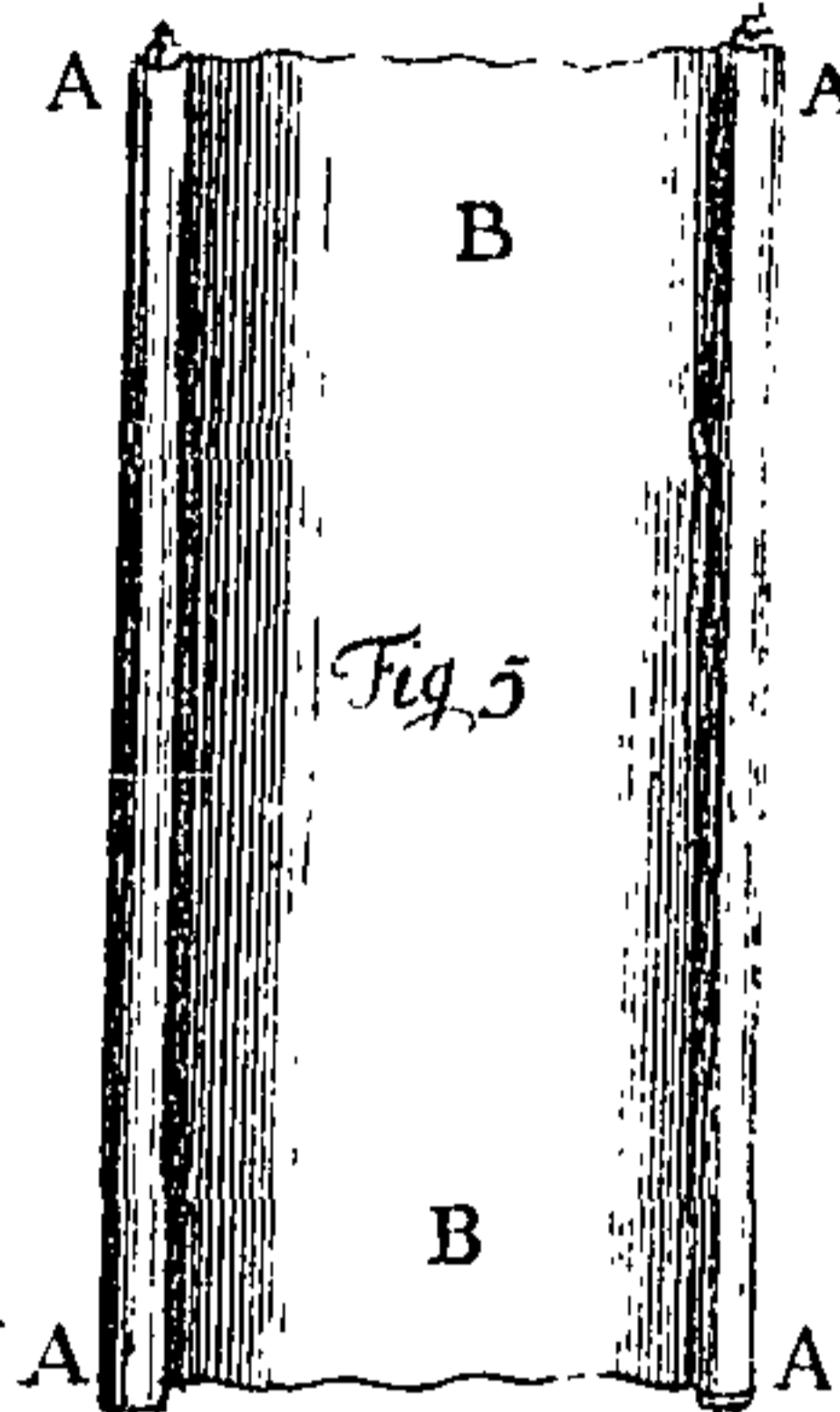
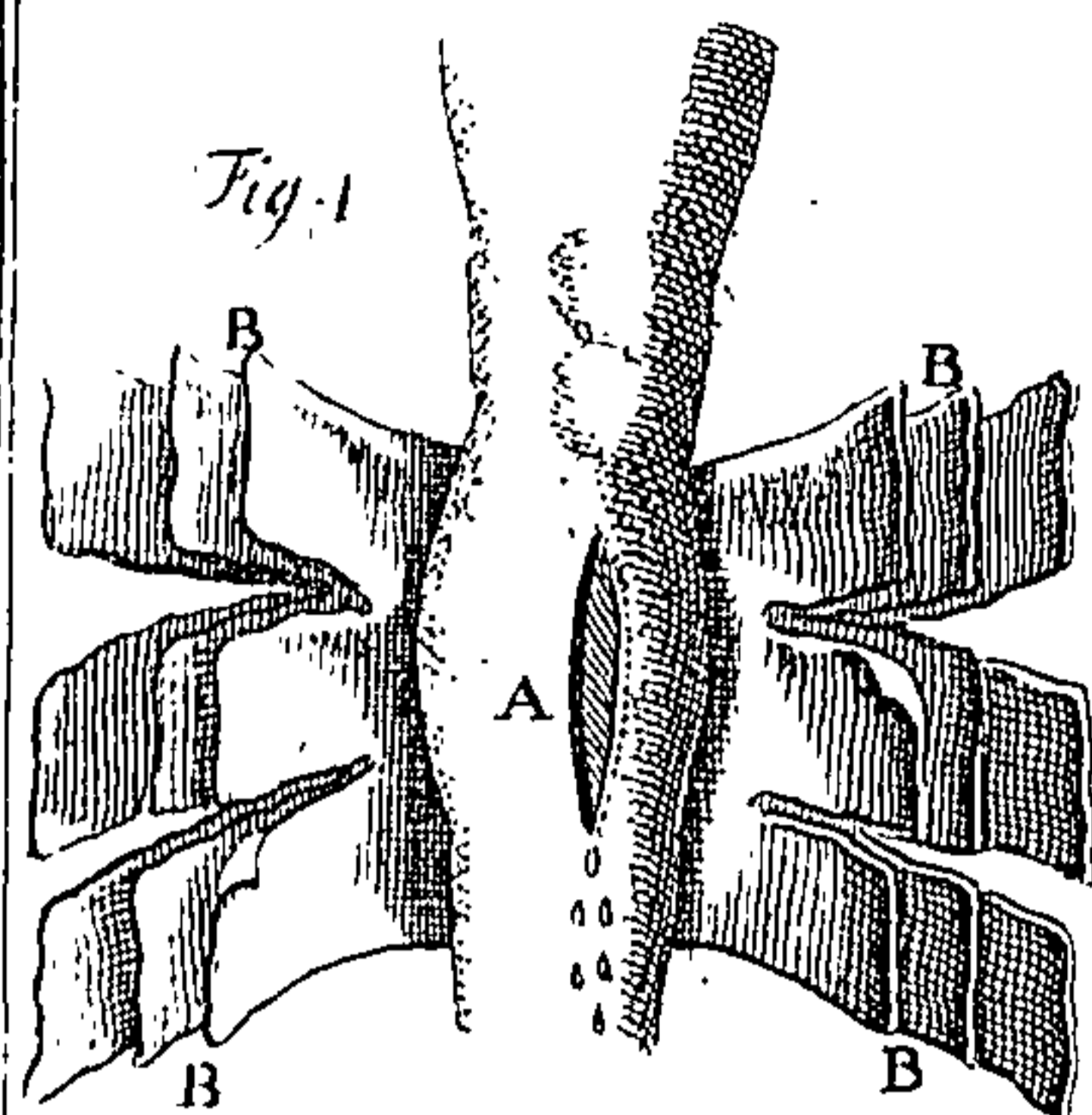


Fig. 7.

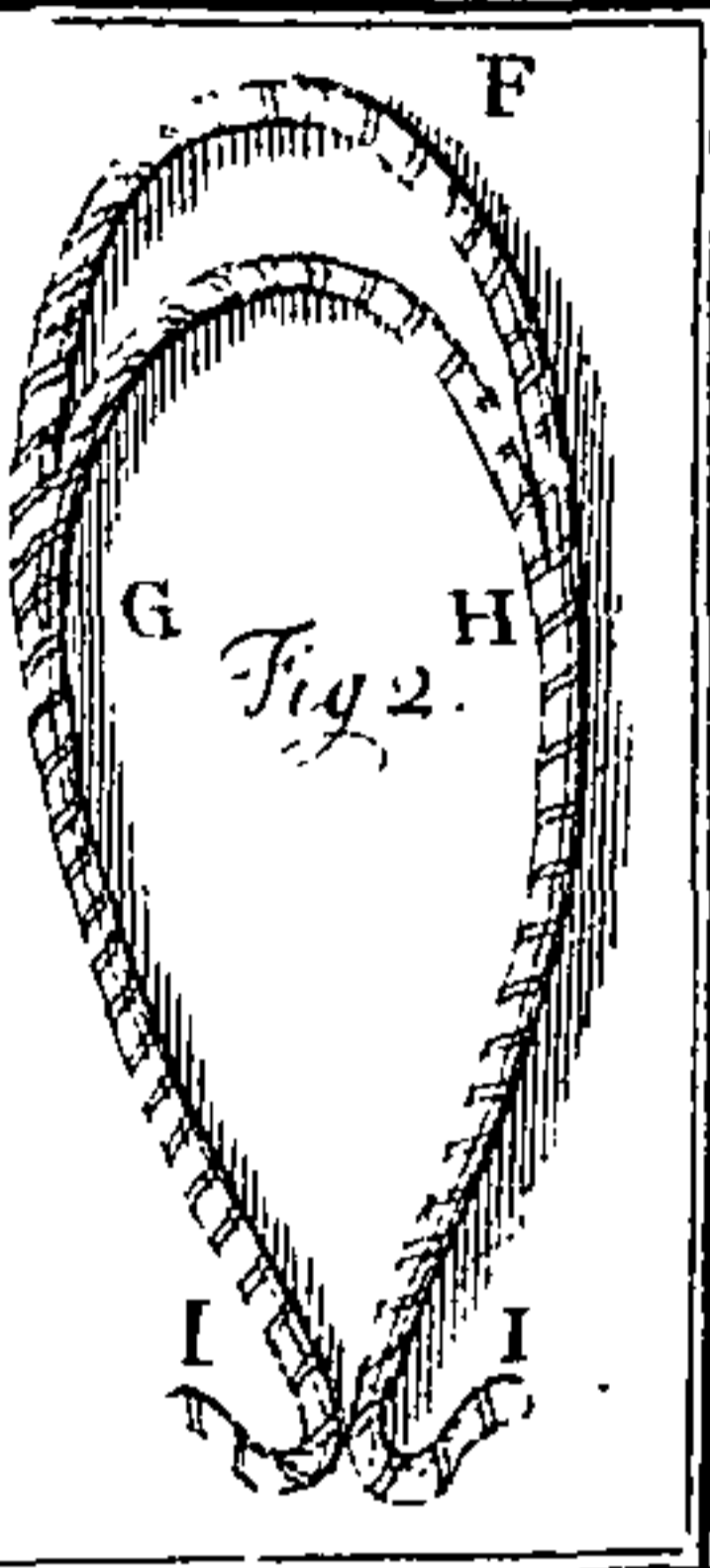
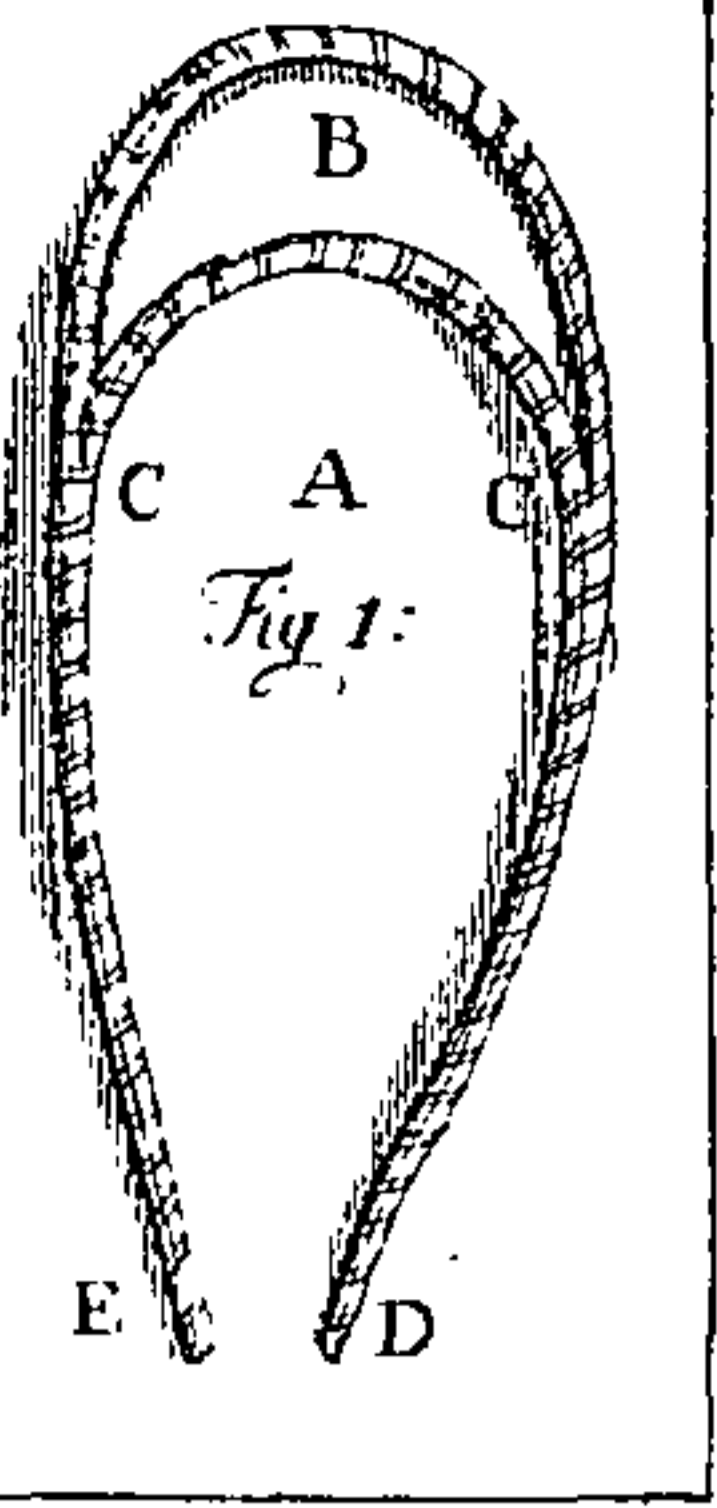
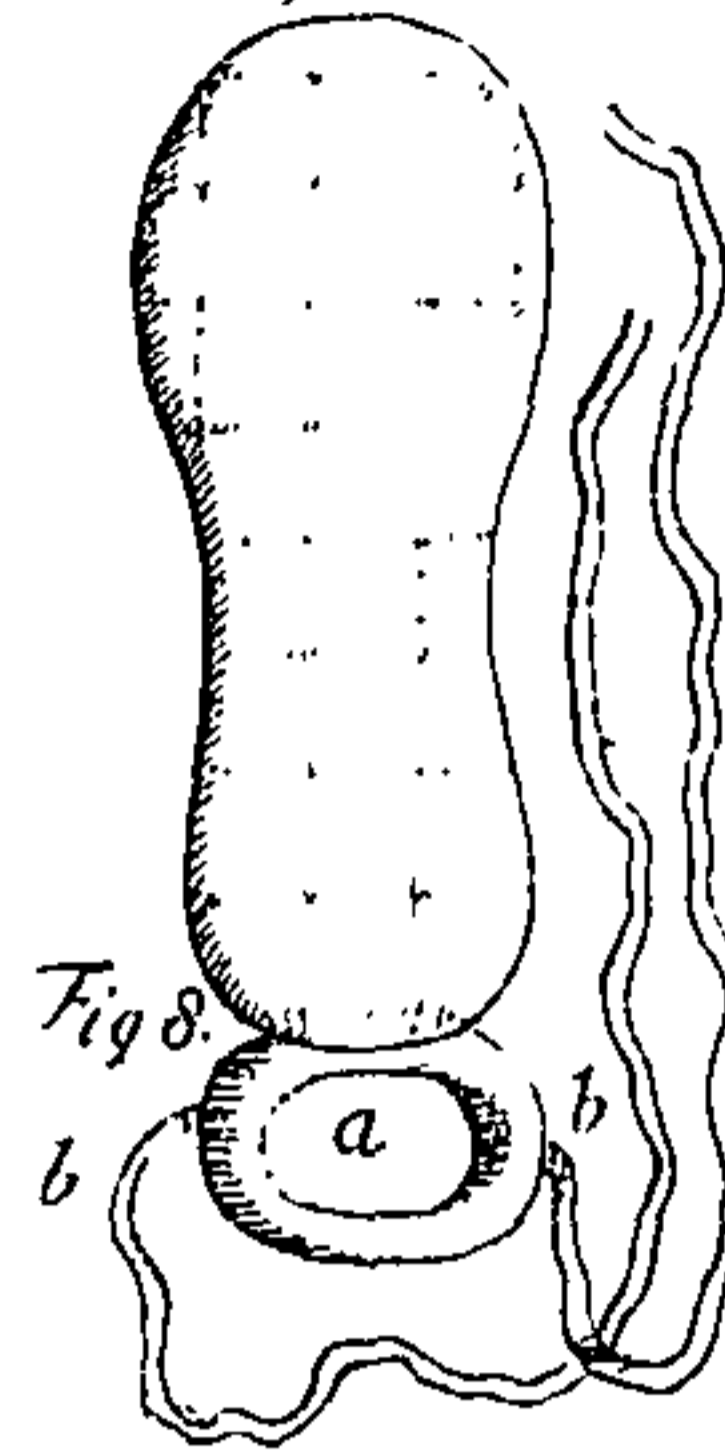


Fig. 3.



Fig. 6.

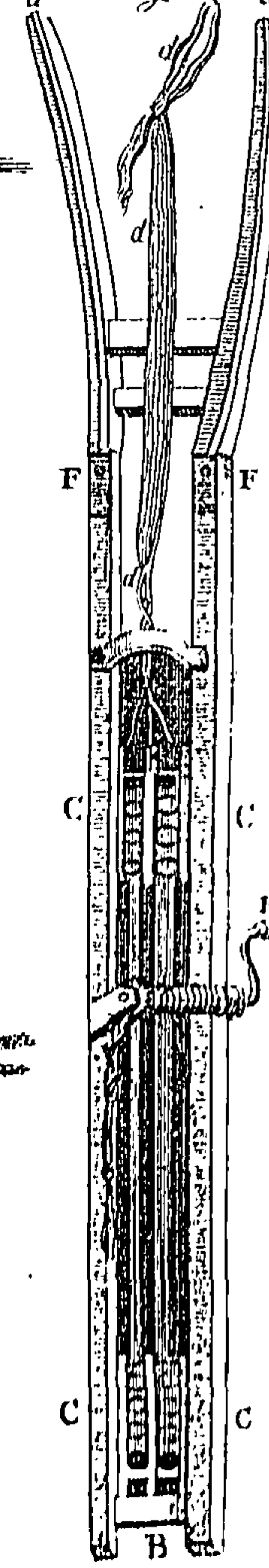


Fig. 9.

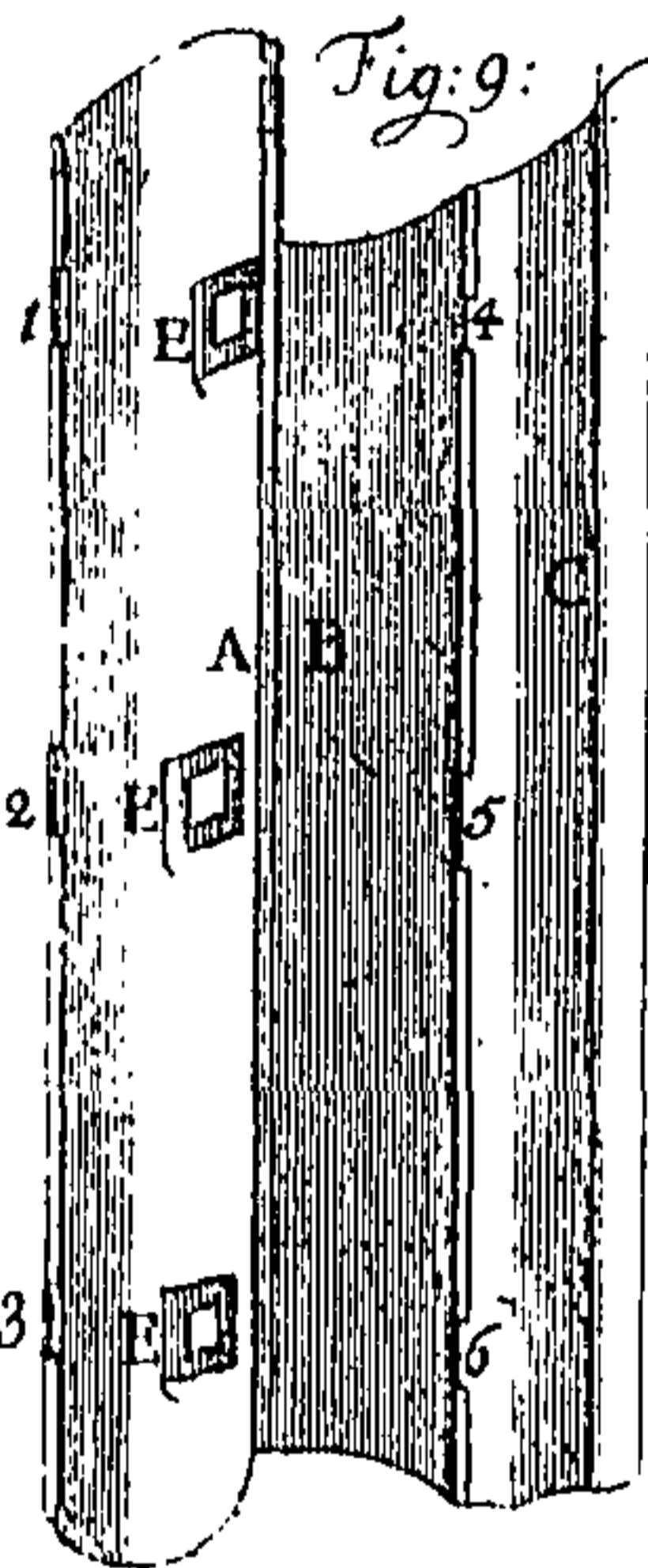


Fig. 11.

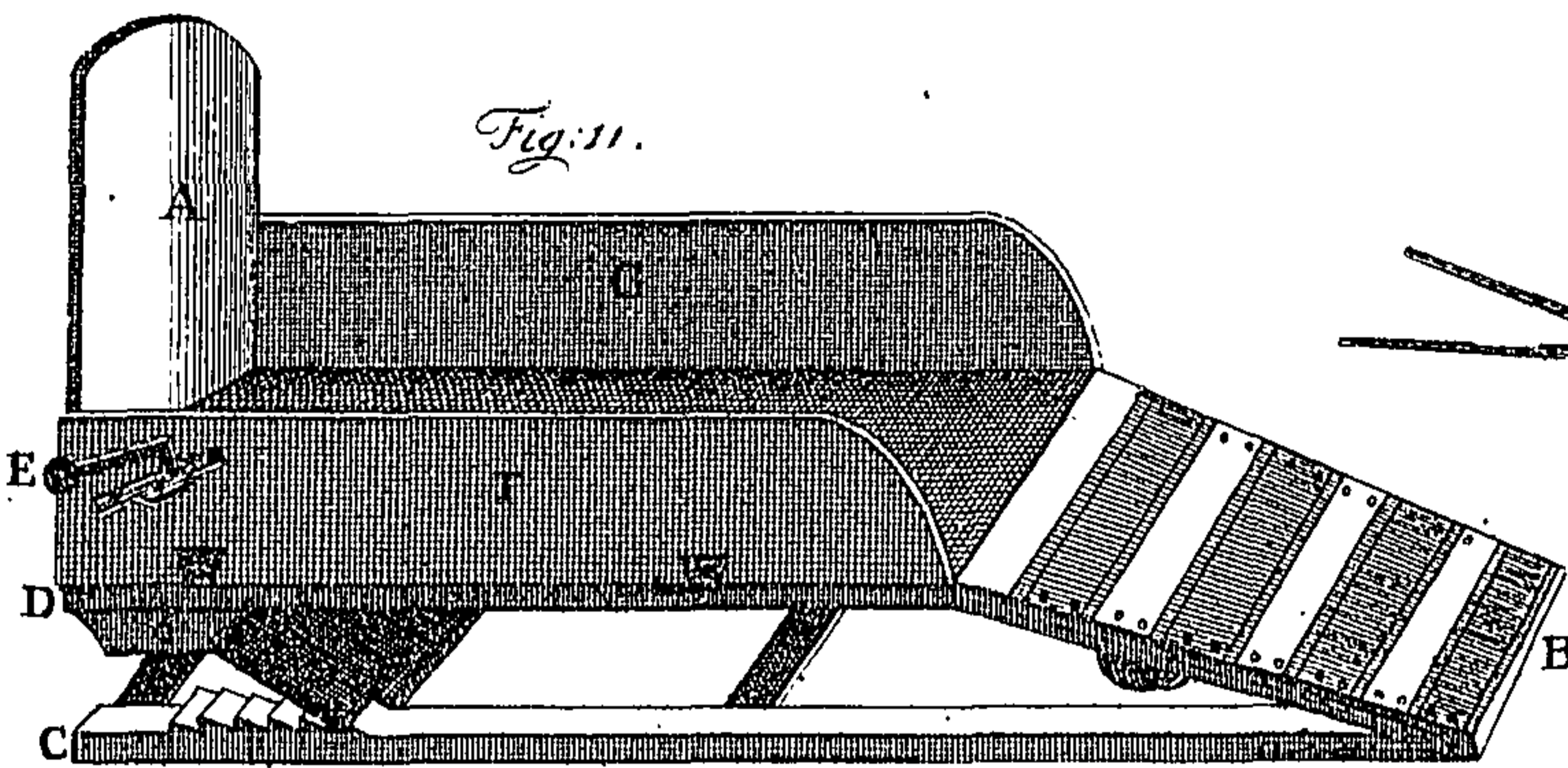


Fig. 12.

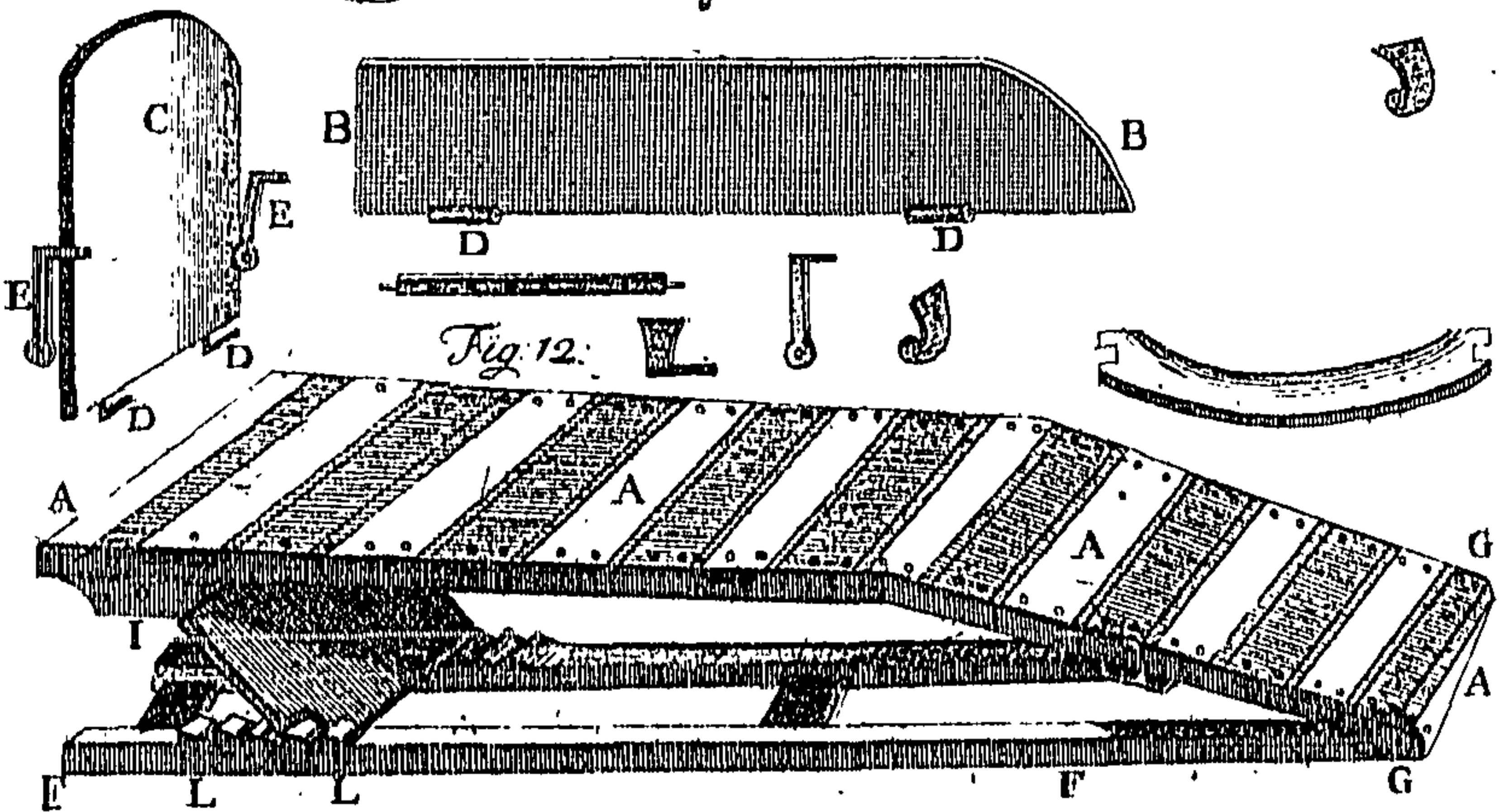


Fig. 10.

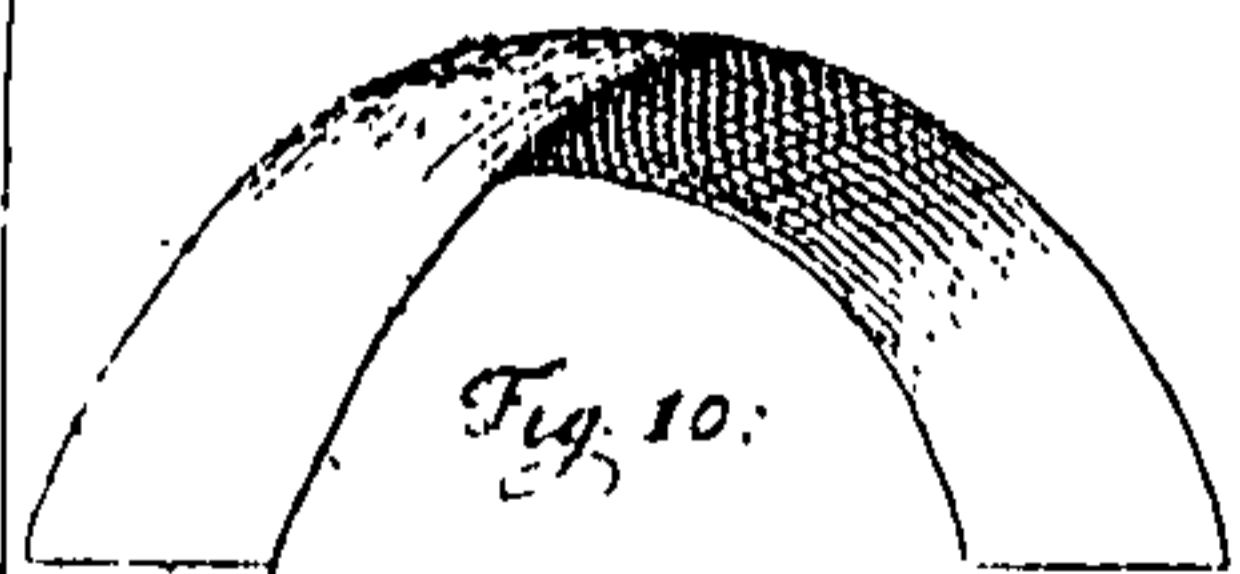


Fig. 13.



Fig. 4.

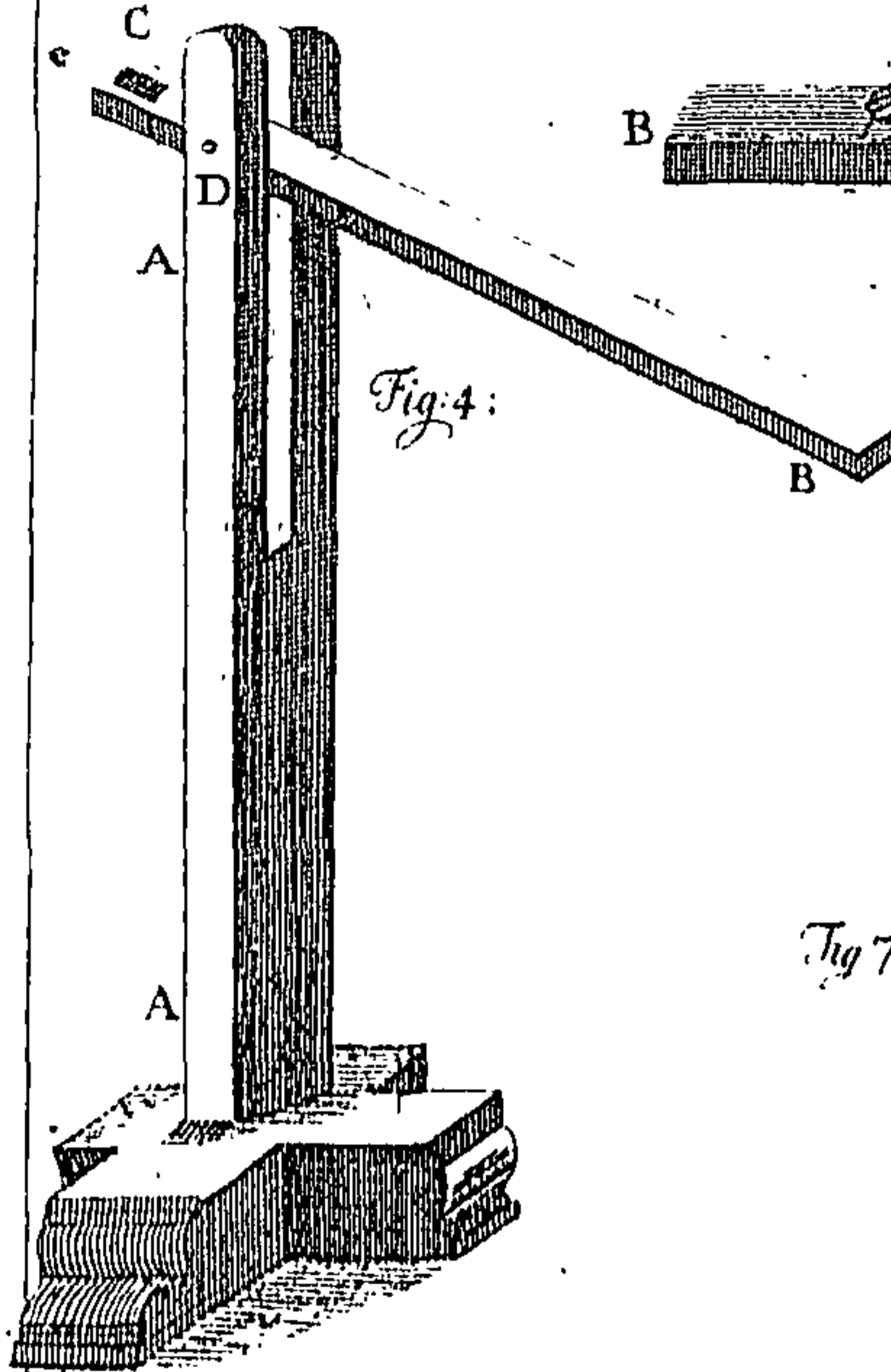


Fig. 7.



Fig. 5.

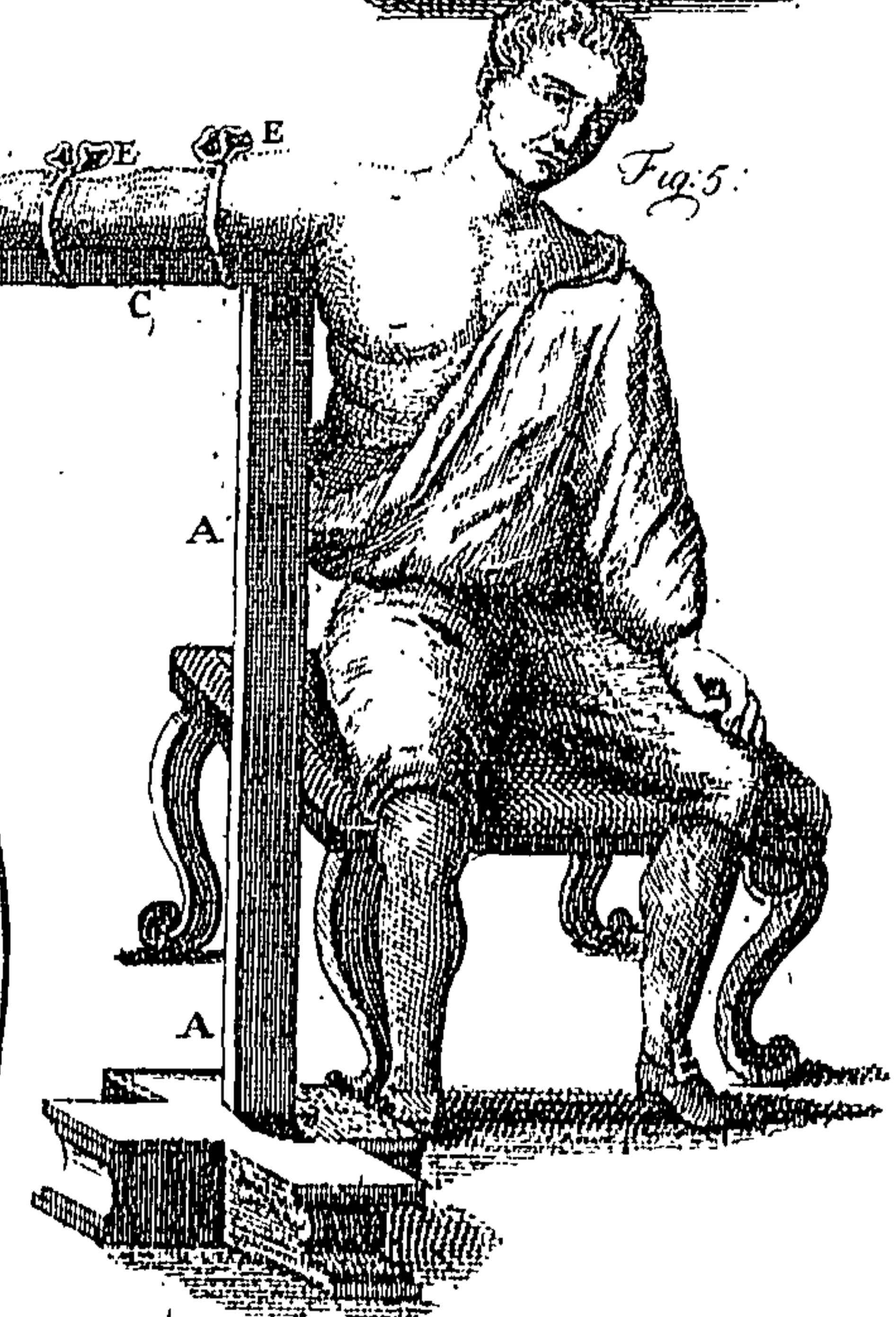


Fig. 8.

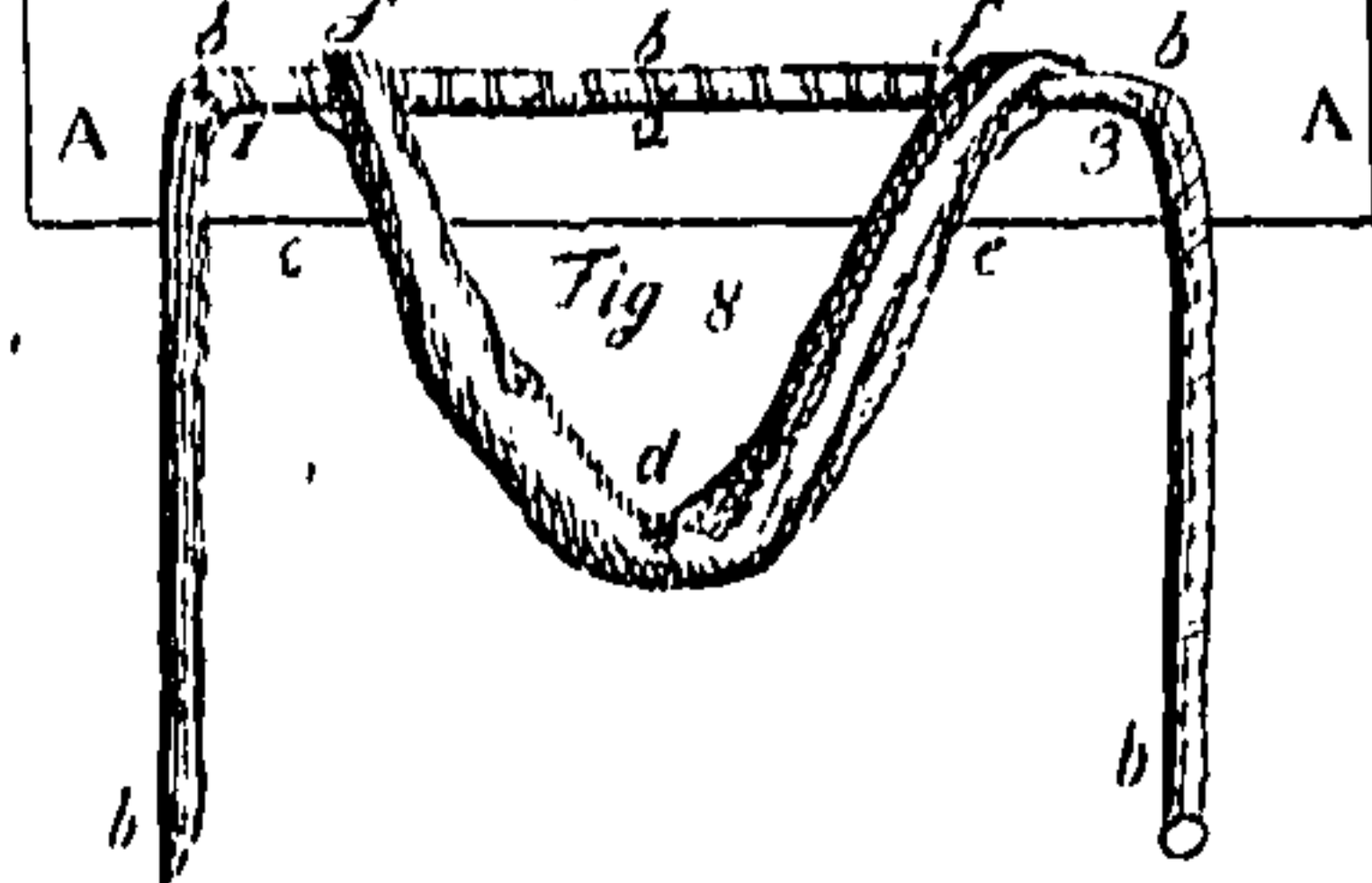
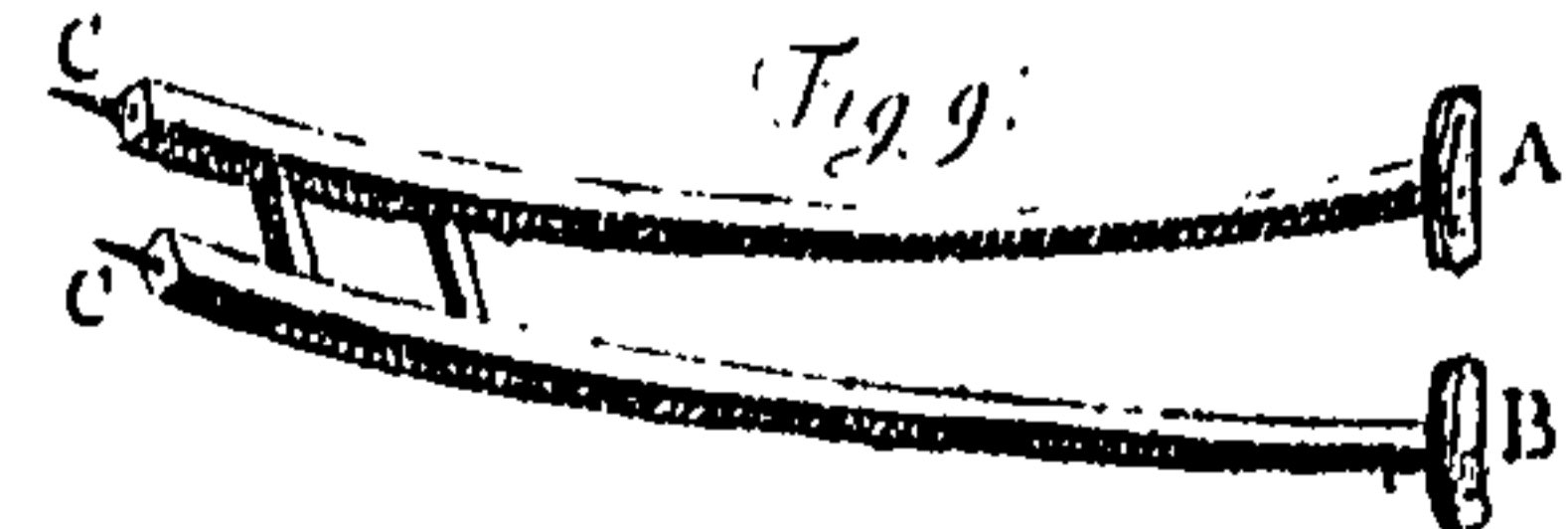


Fig. 9.



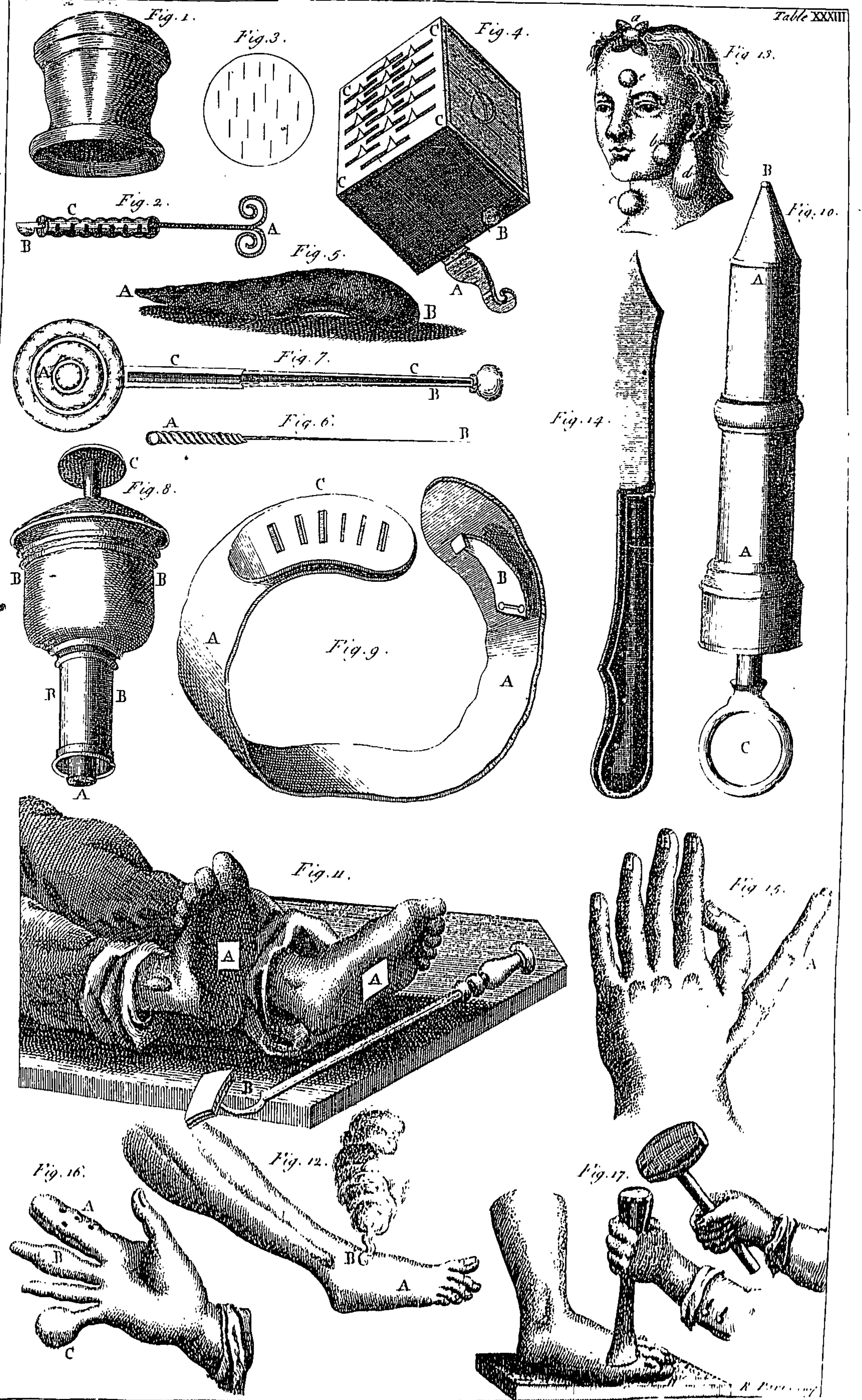
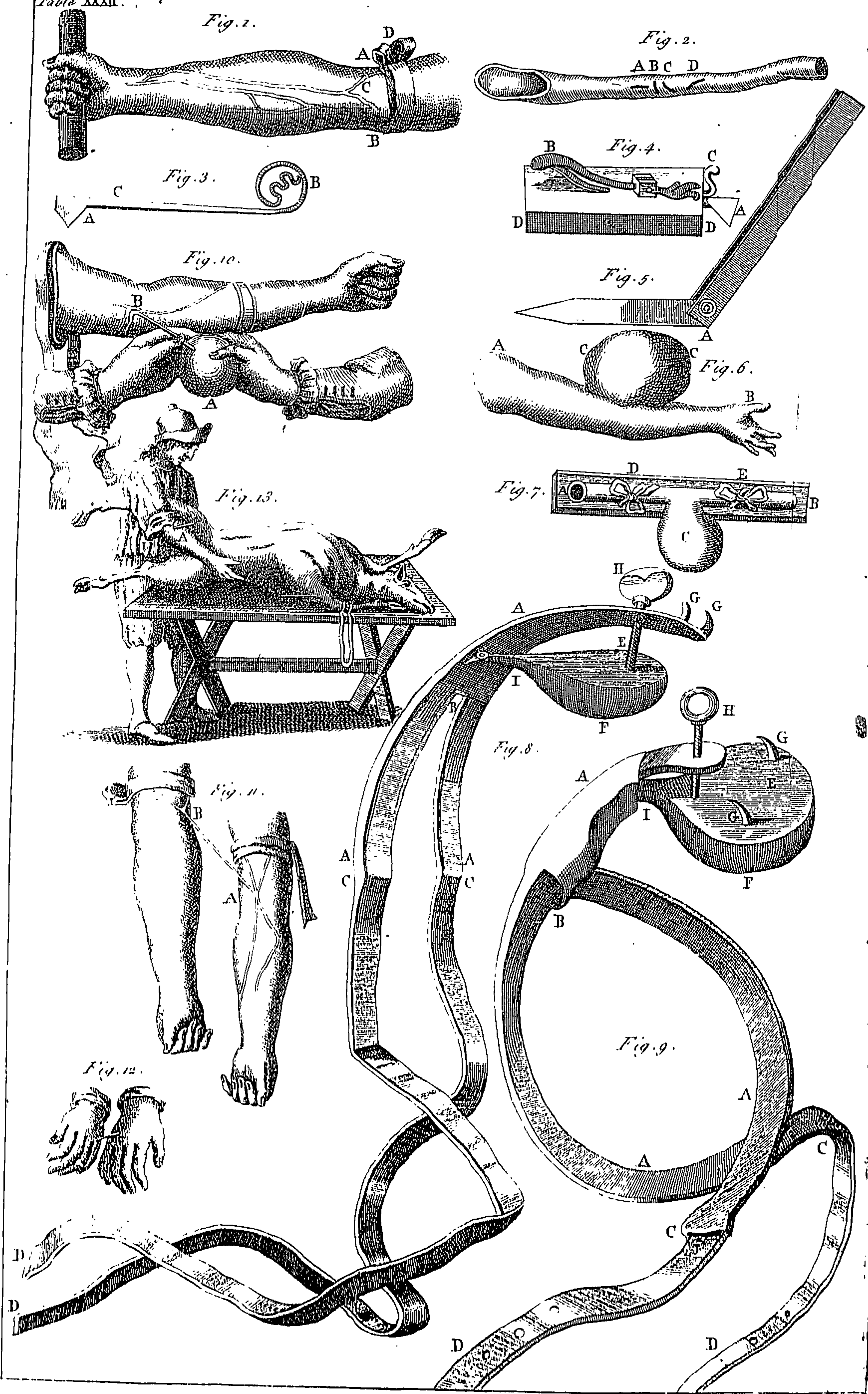


Table XXXIV.

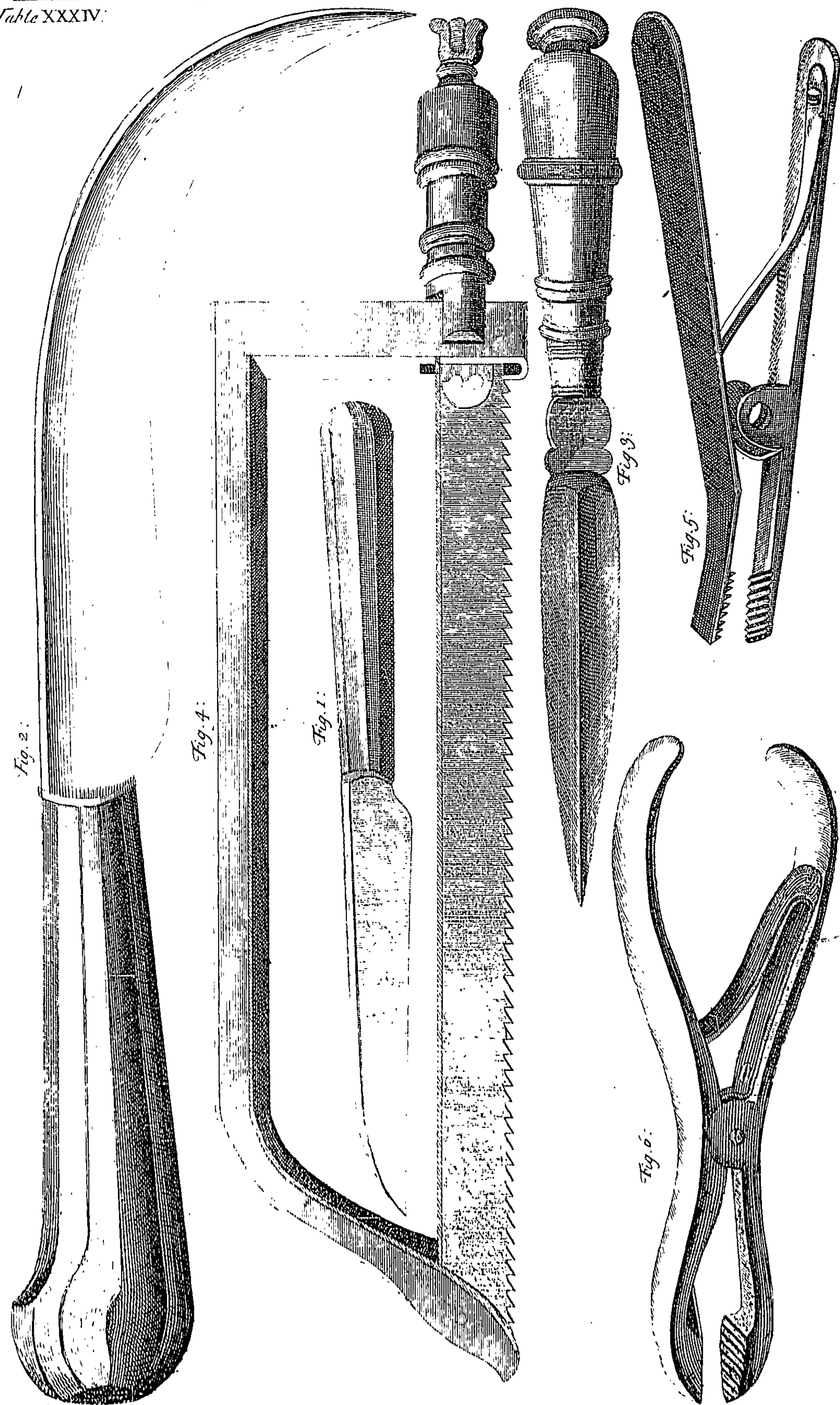


Table XXV.

